

PROVANCHERIA

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Mémoires de l'Herbier Louis-Marie
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FLORA
OF THE
PRAIRIE PROVINCES

A HANDBOOK
TO THE FLORA OF THE PROVINCES OF
MANITOBA, SASKATCHEWAN AND ALBERTA

by

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Part I
Pteroids, Ferns, Conifers and
Woody Dicotyledons
(continued)

1. HYPERICUM L.

ST. JOHN'S-WORT

Herbs (ours) with transparent-dotted leaves. Flowers yellow, pentamerous.

- a. Leaves lanceolate 2. H. majus
- aa. Leaves broader, oblong to suborbicular.
 - b. Leaves, sepals and petals black-dotted along the edge 1. H. formosum
 - bb. Not black-dotted 3. H. virginicum

1. H. formosum HBK. var. Nortoniae (M.E. Jones) C.L. Hitchc. (var. Scouleri AA.) -- Leaves and petals, and to a lesser extent the sepals, abundantly black-dotted along the edge. Perennial herb, about 1 dm high, with ovate to suborbicular leaves. Later half of summer. Wet places in the mountains.--swAlta-BC, wUS.

The more western var. Scouleri (Hooker) Coulter is taller, 2-5-(8) dm high, and has narrower leaves.

2. H. majus (Gray) Britton (H. canadense AA.) -- Petals yellow, small, somewhat shorter than the sepals. Stiffly erect herb 1-4 dm high. Leaves more or less lanceolate, not black punctate. Sepals elongating up to 5-7 mm in fruit. Summer. Shores.--NS-BC, US, (Eur).

The only Alberta collection studied was from Grouard.

The only know collection of H. canadense L. for Manitoba was J.G. Feller, Whitemouth (WIN; DAO, photo). It has been revised to H. majus. Similarly a report of H. anagalloides C. & S. by Macoun 1883 was based on Macoun, Cypress Hills, 1880 (CAN; DAO, photo), a collection later revised and correctly reported by Breitung 1954 as H. majus. Again, the range of H. canadense was extended to B.C. by Macoun 1895. But both specimens cited (CAN; DAO, photo) have since been revised to H. majus.

3. H. virginicum L. var. Fraseri (Spach) Fern. (Triadenum Fraseri (Spach) Gleason) Fruit larger, about 1 cm long. Stem 3-6 dm high. Leaves ovate to oblong, shallowly cordate at base, glaucous below. Petals pink to mauve, slightly longer than the sepals. Mid summer. Shores, often boggy shores. Amisk Lake and eastward.--(L)-NF-SPM, NS-ecS, US.

In the more southern and eastern var. virginicum the sepals are 5-7 mm long in fruit and acute at tip while the styles are 2-3 mm long. On the other hand our var. Fraseri has shorter sepals, 3-5 mm long, and rather obtuse or rounded at tip, while the style is shorter, mostly a bit less than 1 mm long.

Order 25. ERICALES

Anthers acuminate at tip or prolonged into a horn, opening by apical pores. Otherwise a rather variable group and transitional between the groups with free petals and superior ovary and the groups with fused petals and inferior

ovary. Leaves simple, often entire and persistent.

a. Stamens free.

b. Ovary superior.

c. Petals free. Herbs.

d. Green plants 41. Pyrolaceae

dd. Parasitic plants devoid of green

colour 42. Monotropaceae

cc. Petals fused (except Ledum). Shrubs.

..... 39. Ericaceae

bb. Ovary inferior 40. Vacciniaceae

aa. Stamens adnate to the corolla 43. Diapensiaceae

39. ERICACEAE

Shrubs, mostly with persistent and rather thickish or leathery leaves. Flowers mostly with fused sepals, and also mostly with fused petals. Ovary superior.

a. Leaves opposite.

b. Leaves small, less than 1 cm long.

c. Flowers in a terminal corymbose cluster.

..... 4. Loiseleuria

cc. Flowers axillary 7. Cassiope

bb. Leaves larger 5. Kalmia

aa. Leaves alternate.

d. Flowers solitary in the leaf axils.

..... 11. Gaultheria

dd. Flowers more or less aggregated in usually terminal inflorescences.

e. Inflorescence a terminal cluster or corymb overtopping the foliage.

f. Leaves linear, 2 mm wide or less.

g. Leaves green below 6. Phyllodoce

gg. Covered below with a dense rusty felt 1. Ledum

ff. Broader leaves.

h. Inflorescence not punctate, but

glabrous 8. Andromeda

hh. Inflorescence glandular-punctate to puberulent or pilose.

i. Inflorescence densely glandular-punctate, but not pubescent 2. Rhododendron

ii. Densely glandular-puberulent

or pilose 1. Ledum

ee. Inflorescence lateral, or leafy, or more or less overtopped by the leaves.

j. Flowers in axillary clusters at leafless nodes on old wood ... 2. Rhododendron

jj. Inflorescence more or less terminal.

- k. Leaves deeply cordate at base 10. Epigaea
 kk. Rounded to cuneate at base.
 1. Leaves scaly-punctate below 9. Chamaedaphne
 11. Not punctate.
 m. Leaves pubescent on both faces with glandular hairs 3. Menziesia
 mm. Glabrous on both faces 12. Arctostaphylos

1. LEDUM L.

LABRADOR TEA

Petals free. Flowers white, in terminal umbels.

- a. Leaves felty-tomentose below 1. L. palustre
 aa. Glaucous and glandular-dotted below ... 2. L. glandulosum

1. L. palustre L. var. latifolium (Jacq.) Mx. (L. groenlandicum Oeder) -- Labrador-Tea (Thé du Labrador, Bois de savane) -- Leaves strongly revolute and covered below with a very thick rust-coloured felt, but green and glabrous above. Leaves lanceolate, mostly 5-10 mm wide. Flowers white and making the shrub very conspicuous in the bogs at flowering time. Late spring and early summer.--G, K-Aka, L-SPM, NS-BC, US -- Var. decumbens Aiton (L. decumbens (Aiton) Lodd.) -- Generally smaller and lower, the leaves linear, 1-2 mm wide, sparsely glandular above. Spring. Arctic and alpine tundras.--G-Aka, L, Q-n0-nMan-nBC, (Eur).

The bog phase grades northward into the tundra phase.

The report of var. decumbens by Anderson 1949 and Szczawinski 1962 for Newfoundland is probably to be interpreted in the sense of Labrador, a territory which we have listed separately here in accordance with traditional botanical practice, but which is also administratively part of Newfoundland.

2. L. glandulosum Nutt. var. glandulosum -- Trapper's Tea -- Leaves densely dotted with yellow glands below and also usually very white below with a dense and minute pubescence. Twigs white-puberulent. Leaves nearly flat, ovate to lanceolate, deep green and glabrous above. Inflorescence finely puberulent. Early summer. Moist woods.--swAlta-BC, US.

In the western U.S.A. occurs a var. columbianum (Piper) C.L. Hitchc. with strongly revolute and narrower leaves, etc. It was also reported by Szczawinski 1962 from Vancouver, but this report is held to be questionable as the original 1901 collection has never been confirmed, is out of range by more than 150 miles, and might have been a cultivated plant.

2. RHODODENDRON L.

ROSE BAY

Petals unevenly fused, two of them being fused at least half their length, the other 3 much less united, thus the flower is slightly asymmetrical.

- a. Flowers borne on the old wood, below the foliage 1. R. albiflorum
 aa. Inflorescence terminal 2. R. lapponicum

1. R. albiflorum Hooker -- White Rhododendron -- Flowers borne on the old wood in clusters of 1-3 in the axils of last year's leaves. Herbage glandular-hirsute. Leaves lanceolate, entire, deciduous. Flower white to creamy, fairly large. Before mid-summer. Mountain forests.--swAlta-BC, nwUS.

2. R. lapponicum Wahl. -- Except the purple corolla, densely covered throughout with crowded glandular dots, some clear yellow, some reddish brown. Low prostrate shrub with persistent leaves, the blade oblong-lanceolate, revolute, soon drooping. Spring. Arctic and alpine tundra.--G-Aka, L-NF, Q-nMan, swAlta-BC, US, Eur.

3. MENZIESIA Sm.

Petals fused into an urceolate corolla. Fruit a septicidal capsule. Shrubs with deciduous leaves.

1. M. ferruginea Sm. var. glabella (Gray) Peck (M. glabella Gray) -- Fool's Huckleberry -- Flowers in an umbel at the ends of last year's shoot. Foliage mostly carried on paired branches borne just below the inflorescences. Leaves obovate to oblanceolate, serrulate. Flowers 4-merous, creamy to pinkish. Early summer. Moist mountain forests.--wAlta-BC, (nwUS).

Var. glabella has leaves obtuse or rounded at summit, densely puberulent below, the pubescence obscurely mixed with some sessile glands. The upper face of the leaves has pubescence similar to var. ferruginea, but mixed with a less abundant and very fine puberulence. Calyx and ovary finely puberulent and glandular-ciliate.

The more costal var. ferruginea tends to leaves more acute at summit, but differs mainly on minor rearrangements of kinds of pubescence. Leaves not puberulent and sometimes glabrous, but commonly bearing a scanty and coarse pubescence of long hairs mixed with glandular hairs and sessile glands; also glandular-ciliate. Calyx and ovary glandular and glandular-ciliate, but not puberulent.

A Laggan collection (CAN; DAO, photo) dated 1913 fits var. ferruginea but it has never been confirmed and it is so far out of range that we are inclined to suspect a mixture of labels in this case. Our experience of herbaria

would indicate that the probability of a mixed label is about one in 1000 to 10,000 specimens. It varies greatly from herbarium to herbarium and also with the period in time in each herbarium. In most cases label mixtures are so obvious as to constitute no serious source of error.

4. LOISELEURIA Desv.

Flower similar to the preceding, campanulate with fused petals. Capsule septicidal. Leaves opposite. Scales of the flower buds enlarging, becoming green and persistent.

1. L. procumbens (L.) Desv. -- Mayflower, White Flower -- A prostrate shrub with small opposite leaves that are rather similar to those of Empetrum. Leaves tomentose dorsally and on the ventral face of the petiole. Peduncles and calyces glabrous and deep red. Corolla pinkish, small. First half of summer. Drier and rocky tundras.--G-(F)-K-Aka, L-SPM, NS, Q, nMan-nS, wBC, US, Eur.

The various reports for Alberta, Campbell 1900, Hultén 1948 and, doubtfully, Boivin 1966 are likely all unjustified, even if the possibility of its occurrence in the northern parts of the province is not exactly improbable. Campbell's report is presumably based on a misidentification; see comment under Coronopus didymus, part II. Boivin's report is based on Hultén's, which reads "Alberta (54°N.)" and which in turn is likely to be a misreading of Hooker 1834 repeated by Macoun 1884 of 'Mount Edgcombe, lat. 54°'. The said mountain is a feature of the Alaska Panhandle in the vicinity of 54°N, not of the Rockies of Alberta.

5. KALMIA L.

AMERICAN LAUREL

Corolla rotate with 10 depressions in which the anthers are held under pressure from the tensed filaments.

1. K. polifolia Wang. var. polifolia (K. polifolia sphalm.) -- Gold Withy, Bog Laurel -- Internodes flattened in alternating planes. Leaves opposite, persistent, lanceolate to linear, 2-3 cm long, strongly revolute, almost white and seemingly glaucous below, but actually densely covered with minute stellate hairs, the midrib prominent and usually beset with purple, clavate hairs. Flower pinkish red. Late spring and early summer. Common in bogs.--K-Mack-(Y)-Aka, L-SPM, NS-S, (BC), US -- Var. microphylla (Hooker) Rehder -- Lower and with shorter and broader leaves. Mostly about 1 dm high. Leaves around 1 cm long and more or less oblong, only slightly revolute, the midrib glabrous. Alpine meadows and subalpine forests.--K-Y-(Aka), Alta-BC, wUS.

West of us the distinction of our two varieties becomes meaningless as most of the B.C. material is intermediate, the leaves being usually long and narrow but glandless on the midrib.

6. PHYLLODOCE Sal.

Foliage rather similar to that of Picea, linear, persistent, coriaceous and likewise borne on raised leaf bases. Flower urceolate and the capsule septicidal. Low shrubs.

- a. Flowers yellowish 3. P. glanduliflora
 aa. Pink to purple.
 b. Calyx glabrous 2. P. empetriformis
 bb. Densely glandular 1. P. caerulea

1. P. caerulea (L.) Bab. -- Mountain Heath -- Leaves closely glandular-serrulate. Peduncles, calyx and capsule densely glandular. Corolla glabrous, purple. Summer. Late snow patches.--G-K-(Mack, Aka), L-NF, NS, Q, nMan, neUS, Eur.

2. P. empetriformis (Sm.) D. Don -- Heather, Pink Mountain-Heather -- Calyx glabrous; plant otherwise densely glandular as in P. caerulea. Corolla glabrous, pink. Early to mid summer. Marshy meadows around timberline.--(Mack)-Y-(Aka), swAlta-BC, US.

X. P. intermedia (Hooker) Rydb. -- Hybrid with P. glandulifera. Calyx somewhat glandular. Corolla pinkish, glabrous to slightly glandular. Local.--swAlta-BC, (US).

3. P. glanduliflora (Hooker) Cov. -- Yellow Mountain-Heather -- Corolla, calyx, peduncles and capsules densely glandular. Leaves serrulate, glandular-ciliate. Corolla yellowish. First half of summer. High in the mountains, mostly around late snow patches.--Mack-Aka, swAlta-BC, nwUS.

7. CASSIOPE D. Don

Dwarf shrubs with small imbricated leaves and solitary axillary flowers.

- a. Leaves with a deep and obvious dorsal groove
 1. C. tetragona
 aa. Leaves level on the back 2. C. Mertensiana

1. C. tetragona (L.) D. Don var. saximontana (Small) C.L. Hitchc. -- White Heather, Moss-Plant -- Leaves thick, short, densely imbricate into squarish branchlets. Leaves 3-5 mm long, densely short ciliate. Flower white, on a finely glandular peduncle. First half of summer. Rocky alpine and subalpine slopes.--Y, swAlta-seBC, (nwUS).

The typical phase is more northern, has longer pedicels, mostly over 1 cm long, and tends to slightly larger flowers, 5-7 mm long.

2. C. Mertensiana (Bong.) G. Don var. Mertensiana -- Quite similar to the preceeding, but the leaves not grooved on the back and not ciliate. Peduncles densely puberulent. Mid summer. Open forest and alpine prairies around timber-

line.--Aka, swAlta-BC, US.

The more southern var. gracilis (Piper) C.L. Hitchc. has ciliate leaves and glabrous peduncles.

8. ANDROMEDA L.

ANDROMEDA

Flower and fruit as in Menziesia, Chamaedaphne, etc., but the leaves persistent and the inflorescence a terminal bracteolate umbel.

1. A. Polifolia L. var. Polifolia -- Crystal-Berry, Gold-Withy -- Leaves much as in Kalmia polifolia, but alternate. About 1 dm high and glabrous throughout. Leaves 1-3 cm long, narrowly elliptic to narrowly lanceolate, strongly white-glaucous below. Flower pinkish. Late spring to early summer. Bogs.--G, K-Mack-(Y-Aka), Q-BC, Eur -- Var. glaucophylla (Link) DC. (A. glaucophylla Link) -- Plant generally larger, the leaves very finely and very densely white tomentose below, lanceolate to linear.--(G)-F-K, L-(NF)-SPM, (NS-NB)-Q-S, US.

9. CHAMAEDAPHNE Moench

LEATHER-LEAF

Sepals nearly free, subtended by 2 bractlets. Corolla and fruit as in the preceeding. Flowers solitary in the axils of the upper leaves, forming a leafy terminal raceme.

1. C. calyculata (L.) Moench (var. angustifolia (Aiton) Rehder, var. latifolia (Aiton) Fern.) -- Gold-Withy, Leather-Leaf (Faux-bleuets) -- Leaves densely scaly-punctate in clear-white, yellow and red brown, more so on the lower face. Twigs densely puberulent. Leaves elliptic to lanceolate, serrulate, those of the inflorescence gradually smaller. Flowers white, drooping. Early summer. Common in muskegs.--K-Aka, L-SPM, NS-BC, US, Eur.

10. EPIGAEA L.

Calyx similar to the preceeding, with 2 subtending bracts and 5 practically free sepals. Flower with an elongate tube and flaring throat.

1. E. repens L. var. glabrifolia Fern. -- Mayflower, Trailing Arbutus (Fleur de mai) -- Leaves deeply cordate at base, ovate to oblong. Creeping and barely woody, coarsely glandular-hispid throughout, especially on the branchlets. Flowers white, in a few-flowered terminal raceme. Late spring. Coniferous woods.--(L)-NF-SPM, (NS-NB)-Q-(O)-sMan, US.

In our variety the leaves are glabrous below at maturity, except sometimes on the midnerve, while in the more southern var. repens they are variously pubescent (usually pilose) below at maturity.

11. GAULTHERIA L.

WINTERGREEN

Calyx becoming thick and fleshy, growing around the capsule into a pseudo-berry. Flower otherwise similar to that of Andromeda, etc. Low shrubs, not very woody.

a. Leaves small, entire 3. G. hispida
 aa. Larger, serrulate.

b. Leaves cuneate at base 1. G. procumbens

bb. Leaves rounded at base 2. G. humifusa

1. G. procumbens L. -- Ivyberry, Checkerberry (Thé des bois, Thé rouge) -- Only 1 dm high or less, with the 3-5 leaves clustered near the top of the erect stem. Long stoloniferous. Leaves narrowly obovate, 1.5-4.0 cm long. Flowers white, few, nodding. Berry bright red. All summer. Sandy coniferous woods.--NF-SPM, NS-seMan, eUS.

2. G. humifusa (Graham) Rydb. -- Mountain-Teaberry -- Leaves serrulate, the teeth setiferous on the younger leaves. Stoloniferous and very low. Leaves about 1 cm long, oval to suborbicular, the margin finely penciled in white. Flower pinkish. Fruit reddish. Mid summer. Wet mountain slopes.--swAlta-BC, wUS.

3. G. hispidula (L.) Muhl. (Chiogenes hispidula (L.) T. & G.) -- Teaberry (Petit thé, Oeufs-de-perdrix) -- Flowers small, only 2 mm long, and 4-merous. Extensively creeping. Leaves numerous, broadly ovate, subsessile, (0.3)-0.5-(1.0) cm long and ciliate with a few coarse hairs. Berry white. Spring. Forming tangled mats in mossy woods.--K, L-SPM, NS-BC, US.

12. ARCTOSTAPHYLOS Adanson

Fruit a berry developing in the usual manner from the ovary.

a. Leaves serrulate 1. A. alpina

aa. Leaves entire 2. A. Uva-Ursi

1. A. alpina (L.) Sprengel var. alpina -- Foxberry, Poison-Berry (Herbe à caribou, Raisin d'ours) -- Leaves thin, impressed above and rugose below. Stem prostrate and mat forming. Leaves more or less marcescent, obovate to spatulate, long cuneate, finely ciliate towards the base and along the petiole. Flower yellowish. Fruit red to blackish. Early spring. Rocky and gravelly arctic or alpine tundras. --G-Aka, L-SPM, Q-(no)-nMan, swAlta-nBC, (neUS), Eur -- Var. rubra (Rehder & Wilson) Bean (A. rubra (Rehder & Wilson) Fern.; Arctous erythrocarpa Small) -- Leaves very rugose, little or not at all marcescent, not ciliate or barely so. Berry remaining scarlet at maturity.--(F)-K-Aka, (NF), Q-(O)-nMan-nAlta-BC, (Eur).

2. A. Uva-Ursi (L.) Sprengel (var. adenotricha Fern. & Macbr., var. coactilis Fern. & Macbr.) -- Kinnikinick, Bearberry (Raisin d'ours, Sac à commis) -- Leaves finely tomentose-ciliate, also more or less tomentose along the mid-nerve. Widely spreading, carpeting shrub. Leaves thick, spatulate, entire, persistent. Flowers white to pinkish. Berries dull red. Late spring and early summer. Forming carpets over dry or sandy ground.--(G), K-Aka, L-SPM, NS-BC, US, Eur.

Var. adenotricha and var. coactilis are less common phenotypes, rather than geographically restricted varieties.

40. VACCINIACEAE (HUCKLEBERRY FAMILY)

Like the Ericaceae, but the ovary inferior and the fruit a juicy berry. Petals and sepals fused.

1. VACCINIUM L.

BLUEBERRY

Fruit a berry with numerous small seeds.

- a. Peduncles much longer than the leaves ..
..... 8. V. Oxycoccus
- aa. Peduncles much shorter.
 - b. Leaves persistent, retuse at tip .
..... 7. V. Vitis-idaea
 - bb. Deciduous and not retuse.
 - c. Flowers in terminal bracteolate racemes 6. V. angustifolium
 - cc. Flowers solitary in the axils of normal leaves, or 1-3 in a small leafless terminal glomerule.
 - d. Leaves entire 1. V. uliginosum
 - dd. Serrulate.
 - e. Twigs round, puberulent ..
..... 2. V. caespitosum
 - ee. Twigs narrowly winged-decurrent, usually glabrous.
 - f. Berries red; peduncles up to 3 mm long 3. V. scoparium
 - ff. Berries blue to black; peduncles usually longer, up to 1 cm.
 - g. Low, the leaves mostly 1-2 cm long ... 4. V. Myrtillus
 - gg. Taller, the leaves mostly 3-4 cm long ..
..... 5. V. membranaceum

1. V. uliginosum L. var. uliginosum (var. alpinum Big.) -- Ground-Hurts, Bog Bilberry (Bleuet trainard, Bleuet magané) -- Leaves entire, obovate. Stem trailing, with erect branches 1-5 dm high. Leaves obovate, around 1 cm

long, thickish, paler below. Flowers white to pinkish, 1-3 in a small leafless glomerule terminating last year's shoot. Fruit blue. Late spring to mid summer. Wetter arctic and alpine habitats.--(G)-F-Y-(Aka), L-(NF-SPM), NS-(PEI)-NB-Man-(S-Alta)-BC, US, (Eur).

The more western var. occidentale (Gray) Hara has narrower leaves, 2-3 times as long as large. Many other segregates have been proposed, including a smaller V. microphyllum (Lange) Löve, but all these phenotypes are sympatric and grade into one another.

2. V. caespitosum Mx. -- English Blueberry, Dwarf Bilberry (Bleuets, Bleuets maganés) -- Much like the preceding and growing in similar habitats. Leaves 1-3 cm long, typically narrowly obovate, varying from narrowly obovate to narrowly lanceolate, serrulate, thin. Late spring. Cold woods.--K-Aka, L-NF, NS, NB-O-(Man)-S-BC, US, (Eur).

3. V. scoparium Leiberg -- Grouseberry, Whortleberry -- Low shrub, broom-like, with numerous rather stiffly erect branches. Mostly about 1 dm high. Leaves small, less than 1 cm long at flowering, sometimes up to 1.5 cm later. Peduncles 2-3 mm long. Fruit red, drying blue. Late spring. Dry coniferous forest at higher altitudes.--swAlta-BC, (US).

4. V. Myrtilus L. -- Dwarf Bilberry (Myrtille) -- Rather intermediate between the previous and the next. About 2 dm high and the branches widely divergent. Leaves broadly ovate to elliptic, subcordate to broadly rounded at base. Peduncle 3-6 mm long. Berry red, turning blue or black. Early summer. Common and abundant in mountain coniferous woods.--G, swAlta-BC, (wUS, Eur).

The only known Greenland collection is from Alangorsuak (CAN; DAO, photo) and represents probably an introduction rather than a range disjunction. Unless it be a case of mixed labels.

5. V. membranaceum Douglas -- Bilberry, Mountain Huckleberry -- Tallest of the solitary-flowered species. Erect, 2-10 dm high. Leaves 2-5 cm long, elliptic to broadly lanceolate. Peduncles 5-10 mm long. Berries dark blue to black. Early summer. Light mountain woods.--swMack,--(CO), swAlta-seBC, (US).

6. V. angustifolium Aiton var. angustifolium (var. laevifolium House; V. boreale Hall & Aalders; V. Lamarckii Camp; V. pennsylvanicum Lam., var. angustifolium (Aiton) Gray) -- Blueberry (Bleuets, Bleuets de savane) -- Flowers in short leafless racemes borne at the end of last year's shoot. Commonly 3-4 dm high. Twigs and leaves glabrous. Leaves 1.0-3.5 cm long, mostly lanceolate, finely serrate. Berry delicious, blue with a heavy bloom. Late spring. Bogs and acid rocks or soils.--K, L-NF-(SPM), NS-(PEI-NB)-Q-O-(seMan, US) -- F. nigrum (Wood) Boivin (V. Brittonii Porter; V. nigrum Britton) -- Fruit black, without bloom.--

(NF, NS-NB)-Q-Q-(seMan, US) -- Var. myrtilloides (Mx.) House (V. canadense Kalm; V. myrtilloides Mx.; Cyanococcus canadensis (Kalm) Rydb.) -- Twigs and leaves pubescent, the latter usually entire. (Flowering some two weeks later?). Shadier and wetter places.--(Mack, L-NF), NS-(PEI)-NB-BC, US.

Usually subdivided into two or more species. Although we have had much field experience with this entity, we have never been able to detect more than one species in the field and var. myrtilloides has always remained an arbitrary distinction best made in the herbarium with a good handlens or binocular. Intermediates occur between our two varieties; some show an intermediate morphology, others present unusual combinations of the diagnostic characters. The various kinds of intermediates have been decorated with binomials. Diploid and tetraploid forms occur and have been named respectively V. boreale and V. Lamarckii.

7. V. Vitis-idaea L. var. minus Lodd. (Vitis-idaea punctata Moench) -- Partridge-Berry, Redberries (Graines rouges, Pommes de terre) -- Leaves sparsely glandular-pubescent below with small brown hairs. Low shrub with thick, persistent leaves, some of which are retuse at tip. Flowers in bracteolate terminal racemes. Fruit red. Late spring to early summer. Bogs and acid woods.--(G)-F-Aka, L-SPM, NS-BC, US, (Eur).

In the Old World var. Vitis-idaea the leaves average larger, not always a clear cut distinction.

8. V. Oxycoccus L. var. Oxycoccus -- (var. ovalifolium Mx.; Oxycoccus ovalifolius (Mx.) Forsild; O. palustris Pers.; O. quadripetalus Gilibert) -- Cranberry, Marshberry (Atocas, Grisettes) -- Small shrub, little woody, with thin wiry stems half buried in Sphagnum. Leaves 5-8 mm long, persistent, mostly elliptical. Flowers red or pink in clusters of 1-4 at the end of branches or stems. Peduncle 2.0-3.5 cm long, finely puberulent. Corolla deeply lobed. Berry 8-10 mm across, at first punctate, turning red, then black. Early summer. Sphagnum bogs.--K-Mack, L-NF, NS-PEI-(NB)-Q-BC, US, Eur -- Var. microphyllum (Lange) Rouss. & Raym. (var. ovalifolium AA.; V. microcarpum (Turcz.) Hooker; V. Oxycoccus AA.; Oxycoccus microcarpus Turcz.; O. ovalifolius AA.) -- Generally smaller. Leaves (2)-3-4-(5) mm long, mostly ovate. Peduncles 1-2 cm long, often glabrous or nearly so. Fruit somewhat smaller.--(G), K-Aka, L-SPM, NS-PEI, Q-BC, US, Eur.

We have examined the type of Michaux' var. ovalifolium in 1950 and we have photos of the Linean material to compare. Both belong to var. Oxycoccus as interpreted here. And our usage conforms to that of Gleason, Hitchcock, Forsild, Scoggan, etc. But there has been some divergence of opinion and the opposite interpretation prevails with Breitung, Fernald, Roland, etc.

Our two varieties are often treated as species, but

the diagnostic characters are not quite constant and various recombinations of characters occur here and there. He who would here accept two species will eventually be led to accept four, then perhaps eventually eight!

41. PYROLACEAE (WINTERGREEN FAMILY)

Similar to the Ericaceae. Herbaceous or nearly so. Petals free.

- a. Stem leafy in the lower half 1. Chimaphila
- aa. Leaves all or nearly all in a basal rosette ..
..... 2. Pyrola

1. CHIMAPHILA Pursh.

Flowers in a terminal corymb. Stem leafy, lacking a basal rosette.

1. C. umbellata (L.) Barton var. cisatlantica Blake (var. occidentalis (Rydb.) Blake) -- Pipsissewa, Prince's Pine (Herbe à peigne, Herbe à clef) -- A small shrub, practically herbaceous, with a few large and persistent leaves. Leaves oblanceolate, serrate above the middle. Flowers pink. Early summer. Pine woods, uncommon.--(Aka), NF-(SPM), NS-BC, US.

In Old World var. umbellata the leaves have obtuse to subacute teeth. The american phase is weakly distinguishable by its acute to subacuminate teeth. Also the neogean plants tend to average larger with leaves a bit longer and the nerves more rugose than the paleogean.

We have found the characters of var. occidentalis, mainly the weaker venation, to be too elusive and we have not been able to distinguish this taxon other than by its geography.

2. PYROLA L.

Flowers in a raceme. Plants scapose with a basal rosette.

- a. A single terminal flower 1. P. uniflora
- aa. Flowers in a terminal raceme.
 - b. Style straight and vertical on the top of the ovary.
 - c. Raceme conspicuously secund 2. P. secunda
 - cc. Not at all secund 3. P. minor
 - bb. Style curved and strongly deflexed at the base.
 - d. Leaves denticulate.
 - e. Pedicel much longer than the subtending bract 6. P. picta
 - ee. Bract much longer 7. P. bracteata
 - dd. Leaves crenulate to subentire.

- f. Calyx lobes deltoid, 1.0-1.5 mm long.
 g. Leaves small, thick 4. P. virens
 gg. Leaves larger, thin ... 5. P. elliptica
 ff. Calyx lobes elongate, triangular to lanceolate, 1.5-4.5 mm long.
 h. Flowers pink to crimson.
 8. P. asarifolia
 hh. Flowers white to yellowish green 9. P. rotundifolia

1. P. uniflora L. (Moneses uniflora (L.) Gray) -- Scent-Flower, Jockey-Club -- Small herb with a single terminal white flower. Leaves 8-18 mm long, ovate to round, crenate. First half of summer. Dense coniferous woods.--K-Aka, L-SPM, NS-BC, US, Eur.

2. P. secunda L. var. secunda (var. obtusata Turcz.; Orthilia secunda (L.) House) -- Raceme secund; style straight and long exsert. Leaves broadly ovate, crenulate. Calyx lobes semi-orbicular. Petals greenish. First half of summer. Woods.--G-Aka, L-SPM, NS-BC, US, Eur.

There occurs in Mexico a var. elatior (Lange) Boivin with narrower, more acute and thicker leaves.

The neogean plant shows a broader amplitude of variation than the paleogean and the smaller neogean plants with smaller and more rounded leaves and a sparser inflorescence have been described as var. obtusata. To apply var. obtusata to the whole of the neogean population is certainly unrealistic as most of the American plants fit well within the range of variation of the Eurasian type. To try to segregate the smaller extremes is too arbitrary and somewhat meaningless when our plants obviously form a single population.

3. P. minor L. (var. parviflora Boivin) -- Winter-green, Wood Lily -- Style shortest, 2 mm long or less. Leaves (1)-2-3-(4) cm long, broadly ovate to orbicular, mostly shorter than their petiole. Flowers whitish. Early summer. Wet coniferous woods.--(G), K-Aka, L-NF-(SPM), NS-(PEI)-NB-BC, US, Eur.

Northward and eastward the leaves are commonly smaller, but this tendency proved to be insufficiently marked to allow taxonomic recognition.

4. P. virens Schweigger (P. chlorantha Sw.) -- Blades small, mostly 1-2-(3) cm long, thickish and mostly shorter than their petiole. Flowers greenish. Early summer. Uncommon in dry Conifer forests.--(K)-Mack-(Y-Aka, L-SPM), NS-(PEI)-NB-BC, US, Eur.

5. P. elliptica Nutt. -- Shinleaf, Wild Lily-of-the-Valley -- Leaf thin and large, broadly obovate to elliptic, the blade 3-6 cm long. Flowers white, darkening in drying. Towards mid-summer. Aspen woods.--NF, NS-BC, (eEur).

6. *P. picta* Sm. -- Leaf nervation outlined with a double white line for the central nerve and simple white lines along the main lateral nerves. Leaf denticulate, otherwise rather variable in size and shape. Calyx lobes 1.5-2.5 mm long, deltoid to triangular. Flowers greenish-white to yellowish. First half of summer. Rare, in dry coniferous woods: Waterton.--Alta-BC, US.

7. *P. bracteata* Hooker -- Bract slightly longer than, to twice as long as, the pedicel. Leaves elliptic to suborbicular, denticulate through the nerves being short-excurrent. Nerves sometimes lightly outlined in white. Calyx lobes 3.0-4.5 mm long, lanceolate. Flowers pink to crimson. Anthers yellow to pink. Early summer. Damp coniferous woods.--swAlta-BC, US.

8. *P. asarifolia* Mx. (var. incarnata (DC.) Fern., var. purpurea (Bunge) Fern.; *P. californica* Kriss; *P. uliginosa* T. & G.) -- Pink Wintergreen -- The common species with pink to crimson flowers. Leaves round to reniform, crenulate to subentire. Nerves ending at the bottom of the sinuses. Bracts about as long as, to much shorter (especially the upper) than, the pedicels. Calyx lobes 1.5-3.5 mm long, triangular. Petals pink to rose, deepening in drying. Anthers pink to crimson. First half of summer. Woods.--K-Aka, L-NF, NS-BC, US, Eur.

The leaf shape varies in a continuous manner and segregates such as var. purpurea or *P. uliginosa* appear to be both arbitrary and sympatric.

9. *P. rotundifolia* L. (var. americana (Sweet) Fern.; *P. americana* Sweet; *P. grandiflora* Radius, var. canadensis (H. Andres) Pers.) -- Wintergreen, Wild Lily-of-the-Valley (Muguet des bois, Verdure d'hiver) -- Much like the preceding but the flowers white or nearly so, drying yellowish or greenish or dirty green. Leaves suborbicular. Calyx lobes 3-4 mm long, lanceolate, pinkish. Anthers yellow, sometimes pink. Early summer. Mostly dry woods.--G-Aka, L-SPM, NS-BC, US, Eur.

Usually subdivided into 3 taxa of which *P. americana* and *P. grandiflora* are American while the largely Eurasian *P. rotundifolia* is also reported as cisatlantic towards the northeast. We have been unable to detect here any essential difference except that the more northern specimens (*P. grandiflora* or var. pumila (Horn.) Hooker) tend to be smaller. The amphiatlantic *P. rotundifolia* is supposed to differ from the cisatlantic *P. americana* in a number of characters of floral mensurations, but our Eurasian specimens at DAO did not conform to this dichotomy and we were unable to find any tangible characters other than the amplitude of variation in the length of the anthers which is lesser in Eurasian (2.0-3.0 mm) than in American specimens (1.7-3.5 mm). Hence the present consolidation.

42. MONOTROPACEAE (INDIAN PIPE FAMILY)

Parasitic herbs, fleshy and devoid of green colour.
Leaves reduced to fleshy scales. Ovary superior.

- a. Petals free 1. Monotropa
aa. Petals fused into a campanulate corolla .. 2. Pterospora

1. MONOTROPA

INDIAN PIPE

Petals free. Sepals vestigial or missing. Anthers awnless. Plants odd-coloured and often mistaken for mushrooms.

- a. A single terminal flower 1. M. uniflora
aa. Flowers in a terminal raceme 2. M. Hypopithys

1. M. uniflora L. -- Indian-Pipe, Ghost-Flower -- A waxy-white and almost translucent simple herb with a nodding flower of similar texture, the whole plant turning jet black in drying. Sometimes pinkish; becoming somewhat woody in fruit. Late summer and early fall. Parasitic on roots of Conifers.--(Aka), L-SPM, NS-BC, US, (CA), Eur.

2. M. Hypopithys L. (ssp. lanuginosa (Mx.) Breitung, var. latisquama (Rydb.) Kearney & Peebles; Hypopithys latisquama Rydb.) -- Pinesap (Sucepin) -- The whole plant orange-coloured or similarly tinted. Pubescent. Drying brownish black. Flowers in a nodding terminal raceme. Late summer or early fall. Parasitic on roots of Conifers, not so common as the preceding.--Aka, NF-SPM, NS-O, swS-BC, US, CA, Eur.

We have been unable to detect any constant differences that could justify the distinction of a transatlantic var. Hypopithys from a western var. latisquama and an eastern ssp. lanuginosa.

2. PTEROSPORA Nutt.

PINE-DROPS

Petals fused into an urceolate corolla. Anthers awned. Sepals present, fused at base.

1. P. andromedea Nutt. -- Brownish herb, simple and densely glandular-pubescent. Up to 1 m tall. Flowers on elongate recurved pedicels in an elongate raceme. Flowers yellow and purple. Mid summer. Parasitic on Conifers: Rockies, Cypress Hills.--(seAka), PEI, swQ-O, swS-BC, US, (CA).

Rare, highly sporadic and perhaps producing flowering stems only at intervals of many years. Hence rarely collected and we see no reason to dispute the accuracy of the general distribution given above.

43. DIAPENSIACEAE (DIAPENSIA FAMILY)

Like the Ericaceae, but the stamens adnate to the corolla.

1. DIAPENSIA L.

No staminodia. Flower solitary.

1. *D. lapponica* L. -- Moss-Lily, Ground Ivoryflower
 -- Dwarf shrub, low and much branched into a loose or compact cushion. Glabrous. Leaves linear, entire, crowded, marcescent. Flower yellowish green, marcescent, subtended by 3 bracts, solitary and borne on a long, exserted peduncle. Mid summer. Dry tundra.--G-Aka, L-SPM, NS, Q, nMan, US, Eur.

Order 26. CELASTRALES

Petals free, subtended by the small fused calyx. Ovary superior, usually with a disk. Stamens as many as the petals and alternating with them. Leaves simple.

- a. Leaves evergreen 44. Empetraceae
 aa. Leaves deciduous 45. Celastraceae

44. EMPETRACEAE (CROWBERRY FAMILY)

Low shrubs with evergreen leaves. Ovary superior and maturing into a berry similar to that of Vaccinium.

1. EMPETRUM L. CROWBERRY

Leaves acicular, subverticillate. Flower trimerous, bracteolate.

1. *E. nigrum* L. var. *purpureum* (Raf.) DC. (var. *hermaphroditum* (Lange) Sørensen) -- Blackberry, Crowberry (Graïnes noires, Crottes de corneille) -- Carpet-making shrub with some leaves alternate, some opposite, most subverticillate. Leaves linear-oblong, (3)-5-(7) mm long, minutely glandular-ciliate. Flower small, purple. Fruit purple, turning black. Late spring. Bogs, tundras and rocky places.--(G)-F-Y-(Aka), L-(NF-SPM), NS-(PEI)-NB-Alta-(BC), US, (Eur).

In our variety the flowers are perfect or rarely polygamous and the branchlets are finely glandular or sometimes lightly brownish-tomentose. The anthers are marcescent and normally persist at the base of the fruit; the floral type is thus readily determined in most herbarium specimens. In the paleogean var. *nigrum* the branchlets and leaves are glabrous while the flowers are dioecious and the fruit is black.

45. CELASTRACEAE (STAFF-TREE FAMILY)

Seeds surrounded by a fleshy or membranous aril.

- a. Leaves alternate 1. Celastrus
 aa. Opposite 2. Pachystima

1. CELASTRUS L. STAFF-TREE

Woody climbers by twining stems. Flower functionally unisexual, 5-merous.

DIAPENSIA

1. C. scandens L. -- Bittersweet (Bourreau des arbres)
 -- The woody stems becoming quite thick and hard, eventually strangling the host shrub or tree. Leaves ovate to elliptic, serrate, abruptly acuminate. Flowers small, yellowish-green, mostly in a terminal raceme. Fruit orange, opening by three valves and exposing the bright red arils. The mature fruits used for decoration. Early summer. Woods, mostly sand dunes and galerie-forests; Estevan and eastward. --NB-seS, US.

2. PACHYSTIMA Raf.

Non climbing, but a low shrub with opposite evergreen leaves. Flower 4-merous.

1. P. myrsinites (Pursh) Raf. -- Mountain-Box, False Box--Low shrub with numerous small leaves, 1-3 cm long, ovate to lanceolate, serrulate, subsessile, leathery. Flowers reddish, small, axillary. Fruit not seen. Late spring. Coniferous woods.--Alta-BC, US.

Order 27. SANTALALES

Ovary inferior and the perianth reduced to a single verticil of fused parts. Stamens opposite the perianth lobes. Parasitic plants.

- a. Parasitic on branches of Conifers 46. Loranthaceae
 aa. Terrestrial and not so obviously parasitic 47. Santalaceae

46. LORANTHACEAE (MISTLETOE FAMILY)

Parasitic plants, devoid of roots and growing on branches of trees and, when present in abundance, deforming them into witch-brooms. Leaves reduced, opposite. Fruit sticky.

1. ARCEUTHOBIMUM Bieb.

Leaves opposite, connate and reduced to a small sheath at each node. Flowers dioecious, much reduced and insignificant.

- a. Plant light green 1. A. americanum
 aa. Plant blackish 2. A. pusillum

1. A. americanum Nutt. -- Growing on the branches of Pinus Banksiana and usually shorter than the needles. Stem branched, often tufted.--Man-BC, US.

2. A. pusillum Peck -- Dwarf Mistletoe -- Growing hidden among the needles of Picea mariana. Stem usually simple and shorter than the needles, often a mere 1-3 mm in length. --NF, NS-Man, US.

47. SANTALACEAE (SANDALWOOD FAMILY)

Similar to the Mistletoes, but terrestrial and not al-

ways parasitic on roots of other plants. Leaves alternate. Fruit indehiscent, a nut or slightly fleshy drupe. A single genus with us.

1. COMANDRA Nutt.

BASTARD TOAD-FLAX

Long stoloniferous herbs with alternate leaves. Sepals and stamens 5.

- a. Inflorescence terminal 1. C. umbellata
 aa. Flower axillary 2. C. livida

1. C. umbellata (L.) Nutt. var. umbellata (C. Richardsiana Fern.) -- Calyx lobes whitish and more or less giving their color to the flowering corymbs. Otherwise a rather inconspicuous plant. Glabrous. Stem (1)-2-(3) dm high, nearly simple. Leaves lanceolate, entire, thin, paler and somewhat glaucous below, often slightly revolute at margin. Calyx lobes 2-3 mm long, triangular to oblong. Fruit greenish, 3-6 mm across. Late spring. Common in open, grassy places.--L-NF, NS-BC, US -- Var. angustifolia (A.DC.) Torrey (C. pallida AA.) -- Like the preceding, but the leaves thickish, slightly fleshy, somewhat glaucous on both faces. Nervation indistinct or nearly so, not rugose. Calyx lobes mostly larger, (2)-3-4 mm long. Fruit bigger, 5-8 mm across.--Man-Alta, US -- Var. pallida (A. DC.) G.N. Jones -- Generally somewhat taller and commonly 3-4 dm high. Branches usually numerous, elongated and bearing leaves that are much narrower than the stem ones, the latter as in var. angustifolia. Flowers in a corymb or more often in a panicle. Calyx and ovary connected by a well defined neck about 2 mm long. Calyx lobes 3-4-(5) mm long. Fruit with a neck 1-2 mm long.--swAlta-BC, US.

Our treatment is different in one way or another from any of the current floras. We have been unable to maintain Comandra Richardsiana as a consistent segregate. But we have distinguished the prairie phase from both the eastern phase and the mountain one, while most authors will lump this prairie phase now with the eastern, now with the western type.

Most specimens of the prairie phase will be found identified as C. pallida, but reading the description of De Candolle, studying photos of his specimens and considering the geographical origin of the type collection, it becomes clear that such usage must be erroneous.

C. pallida has also been reported by many authors, Hultén 1944, 1950, Anderson 1946, Porsild 1951, Scoggan 1957, from the Dawson area of Yukon, but we have yet to see the cited specimens and are not therefore in a position to decide upon their varietal appertenance. There is also a Mackenzie collection of var. angustifolia labelled "MacTavish, on Anderson River near Port Hope" (CAN) which we consider to be questionable as to locality because it is so far removed from the rest of the range and has never been confirmed.

2. C. livida Rich. (Geocaulon lividum (Rich.) Fern.) -- A simple herb usually bearing a single red fruit borne half way up on a long axillary peduncle. Glabrous. Leaves ovate to elliptic-lanceolate, entire. Flowers green to reddish, few or solitary in a single or a few axillary inflorescences. Fruit a red and fleshy drupe. Late spring. Usually in wet places or coniferous woods.--K-Aka, L-NF, NS, NB-BC, US.

Order 28. RHAMNALES

Similar to the Santalales, but the petals present and the stamens opposite them or, if the petals are absent, the stamens alternate with the calyx lobes.

- a. Foliage stellate-pubescent 49. Elaeagnaceae
- aa. Pubescence, if any, not stellate.
 - b. Inflorescence axillary or terminal 48. Rhamnaceae
 - bb. Inflorescence borne opposite a leaf 50. Vitaceae

48. RHAMNACEAE (BUCKTHORN FAMILY)

Flower perigynous with a well developed disk. Petals generally clawed and more or less hooded over the stamens.

- a. Inflorescence axillary 1. Rhamnus
- aa. Inflorescence terminal 2. Ceanothus

1. RHAMNUS L.

BUCKTHORN

Fruit fleshy, indehiscent. Petals reduced or lacking.

- a. Spinescent, the terminal buds opposite and flanking a short spine 2. R. catharticus
- aa. Not spiny; terminal bud solitary.
 - b. Leaves serrate 1. R. alnifolius
 - bb. Entire or nearly so 3. R. Frangula

1. R. alnifolius L'Hér. (R. alnifolia sphalm.) -- Dwarf Alder -- Colonial shrub, decumbent at base, the flagellate branches leafy at tip only. Leaves ovate to elliptic-lanceolate, usually short acuminate, all alternate. Flowers small, greenish, few, without petals. Fruit a black berry. Late spring. Marshy woods and bogs.--NF, NS-BC, US.

Nearly all latin names of trees and shrubs are of the feminine gender, but there are a few exceptions and Rhamnus is one of them. So are Acer, Ceanothus, Ribes, Viburnum, etc.

2. R. CATHARTICUS L. -- Buckthorn (Epine noire, Bois noir) -- Small tree or shrub with lateral branches ending in a short sharp spine flanked by two opposite buds. Leaves ovate, serrulate, most of the leaves opposite or subopposite and usually with a few of the lower leaves alternate. Petals small, greenish or deep red. Berries black. Late spring. Sometimes planted and readily naturalizing itself in the nearby bush.--NS-PEI-(NB)-Q-S, US, Eur.

3. R. FRANGULA L. -- Black Dogwood, Black Alder (Bourgène, Aulne noir) -- A shrub with alternate leaves, except that those of the upper 1-2 pairs are opposite or subopposite. Leaves ovate, entire, shining below. Petals small, whitish. Fruit hardly fleshy, purple-black. First half of summer. Well naturalized in one ravine in Brandon.--NS-Man, US, Eur.

2. CEANOTHUS L.

NEW JERSEY TEA

The petals long-clawed and conspicuously hooded over the stamens. Fruit a capsule separating at maturity into 3 dehiscent 1-seeded carpels. Leaves with 3 main nerves, parallel to converging, and about equally strong.

- a. Leaves lanceolate 1. C. ovatus
 aa. Leaves ovate to elliptic 2. C. velutinus

1. C. herbaceus Raf. (C. ovatus Desf.) -- Lanceolate leaves with 3 main nerves. Low branchy shrub. Leaves glabrous to velvety, glandular-serrate, the glands dark purple. Flowers white, umbellate, most of the umbels closely inserted on a short rachis, forming a terminal corymb borne on a long peduncle. Early summer. Semi-open sandy places.--swQ-seMan, US.

2. C. velutinus Douglas var. velutinus -- Snow-Brush, Deer-Brush -- Strongly resin-scented. Leaves persistent into the following summer, the new leaves not appearing until flowering time, the old leaves falling off in the latter part of the summer. Soft puberulent on the twigs and lower surface of the leaves. Flowers white, in numerous umbels, gathered in ill-defined panicles. Early summer. Light woods on dry soils.--swAlta-BC, US.

The more western var. laevigatus (Hooker) T.&G. is glabrous.

49. ELAEAGNACEAE

(OLEASTER FAMILY)

Shrubs with the lower leaf surfaces and other parts densely covered with scale-like stellate hairs which give the plant a silvery or otherwise unusual appearance.

- a. Leaves opposite 2. Shepherdia
 aa. Leaves alternate.
 b. Calyx lobes 2 1. Hippophae
 bb. Calyx lobes 4 3. Elaeagnus

"

1. HIPPOPHAE L.

SEA BUCKTHORN

Calyx lobes 2; stamens 4.

1. H. RHAMNOIDES L. -- Sea-Buckthorn, Willow-Thorn (Argousier, Epine luisante) -- Winter buds bilobed. Spinescent shrub. Leaves linear, green above, white-stellate below with some admixture of brown stellate hairs. Fruit brown-stellate. Mid-spring. Sometimes cultivated and locally escaped in the coulée of the Saskatchewan at Edmonton.--cAlta, Eur.

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2. SHEPHERDIA Nutt.

Calyx lobes 4; stamens 8. Leaves opposite.

- a. Twigs brown-stellate 1. S. canadensis
 aa. Twigs silvery-stellate 2. S. argentea

1. S. canadensis (L.) Nutt. -- Soopolalie, Bitter Berries
 -- The opposite leaves white-stellate below and dotted with numerous red-brown stellate hairs. Not spiny. Leaves oblong, green and nearly glabrous above. Flowers small, brownish. Fruit a fleshy drupe, bright red, nearly glabrous. Early spring. Usually in wet places and mostly in open woods.--K-Aka, (L)-NF, NS, NB-BC, US.

2. S. argentea Nutt. -- Buffalo-Berry, Bullberry (Graines de boeuf) -- Ferociously spiny shrub with stiff, right-angled branching, the branches mostly opposite. Leaves oblong-lanceolate, densely stellate-pubescent, grayish-green above, grayish-white below. Flowers small, densely brown-stellate. Fruit as in the preceding. Early spring. Steep coulée banks.--sMan-Alta, US.

3. ELAEAGNUS L.

OLEASTER

Calyx lobes 4; stamens 4.

- a. Twigs brown-stellate 1. E. commutata
 aa. Twigs white-stellate 2. E. angustifolia

1. E. commutata Bernh. (E. argentea Pursh) -- Wolf-Willow, Silver-Berry (Bois d'argent) -- A common and showy silvery-leaved shrub. Stoloniferous and forming large colonies in the prairie, mostly about 1 m high. Leaves elliptic, silvery-white on both faces, but whiter below and with a few red-brown scales. Flower silvery outside, yellowish-green inside. Fruit silvery-white. Early summer. Prairies, usually on chernozems.--K-Aka, Q-BC, US.

2. E. ANGUSTIFOLIA L.-- Russian Olive, Oleaster (Olivier de Bohème, Olivetier) -- Spiny shrub, most spines being paired with a leafy shoot borne at the same node. Leaves lanceolate, green above, shining silvery below. Flowers white-silvery outside, green inside. Fruit silvery, the size of a small olive. Early summer. Sometimes planted and commonly naturalized on river shores further south, more locally so with us.--O-Man, (Alta)-BC, US, Eur.

50. VITACEAE

(VINE FAMILY)

Climbing shrubs, ours climbing by tendrils borne opposite the leaf.

- a. Leaf simple 1. Vitis
 aa. Leaf compound 2. Parthenocissus

1. VITIS L.

GRAPE

Petals fused and falling off as a unit before anthesis. Climbing shrubs bearing panicles of edible fruits called "grapes".

1. V. riparia Mx. (V. palmata AA.; V. vulpina AA.) -- Grape, Frost-Grape (Vigne, Vigne des battures) -- Woody climber with palmately-nerved leaves. Climbing to the top of the trees, its trunk up to 2-3 cm in diameter. Leaves alternate, broadly cordate, more or less 3-5 lobed, coarsely toothed. Fruit black with a bluish bloom. Early summer. Galerie-forests.--NS, NB-sMan, US.

2. PARTHENOCISSUS Planchon

Petals free and remaining until after anthesis.

1. P. quinquefolia (L.) Planchon (Pseodera quinquefolia (L.) Greene) -- Virginia-Creeper (Vigne vierge) -- A woody climber with a large digitate leaf. Climbing into trees by means of branched tendrils that end in adhesive disks 1.5-3.5 mm wide. Leaf long-petioled, with 5 leaflets, the latter short-petioled, ovate to broadly oblanceolate, coarsely dentate. Early summer. Floodplain forests.--(NS-NB)-Q-O-(sMan, US, CA) -- F. macrophylla (Lauche) Boivin (P. inserta (Kerner) K. Fritsch) -- Tendrils merely twining, not producing adhesive disks.--(NS)-PEI-(NB)-Q-O-(Man, US).

Order 29. LOGANIALES

Sepals fused and the petals also fused. Stamens borne on the corolla and alternating with the corolla lobes. Ovary superior. Flower actinomorphic.

51. OLEACEAE

(OLIVE FAMILY)

Stamens only 2.

a. Leaves compound 1. Fraxinus
aa. Simple 2. Syringa

1. FRAXINUS L.

ASH

Fruit a paddle-shaped samara. Flowers much reduced, the calyx minute and the petals lacking.

a. Leaflets 5-7 1. F. pennsylvanica
aa. Leaflets 9-13 2. F. nigra

1. F. pennsylvanica Marsh. var. Austinii Fern. -- Ash, River-Ash, (Frêne, Frêne rouge) -- River shore tree with opposite and compound leaves, mostly with 7 leaflets. Buds gray-brown. Branchlets short-velvety, the rachises and lower surface of the leaflets more or less pubescent. Leaflets lanceolate, serrate, the lower with a short petiole. Samara flat and

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broadly above, terete and much narrower below. Early spring. Shores and floodplains.--NS, NB-Man, US -- Var. subintegerrima (Vahl) Fern. (var. lanceolata (Borkh.) Sarg.; F. campestris Britton) -- Green Ash (Frêne vert) -- Twigs, rachises and leaflets glabrous.--NS-PEI, Q-S, US.

Reports by Scoggan 1957 of var. Austini from Saskatchewan and of var. subintegerrima from Alberta would seem to be creditable to a lapsus calami, according to Scoggan (verbatim).

2. F. nigra Marsh. -- Black Ash, Swamp Ash (Frêne noir, Frêne gras) -- Tree with large jet-black buds. Much as in the preceding, but the leaflets more numerous and sessile. Samara flat throughout, oblong-lanceolate and not particularly wider above than below. (Early spring?). Marshy woods.--NF, NS-Man, US.

2. SYRINGA L.

LILAC

Fruit a capsule. Corolla showy.

1. S. VULGARIS L. -- Lilac (Lilas; Arbre de lilas) -- Shrub with a showy panicle of sweet-scented tetramerous flower. Leaves opposite, glabrous, deltoid-ovate and entire, the base truncate to subcordate. Early summer. Sometimes planted and rarely persisting on moister sites: Moose Jaw.--NF-(PEI-NB)-Q-O, S, US, Eur.

Order 30. APOCYNALES

Much as in the Loganiales, but the two carpels fused by their styles only.

- a. Flower of a standard type 52. Apocynaceae
 aa. Flower very complex, with corona, horns and pol-
 linia 53. Asclepiadaceae

52. APOCYNACEAE

(DOGBANE FAMILY)

A typical and unspecialized pentamerous flower with a calyx and corolla of fused parts and a bicarpellate ovary.

1. APOCYNUM L.

DOGBANE

Herbs with very abundant white latex, opposite leaves and twinned pendent fruits.

- a. Corolla 5-6 mm long, pink, or white with pink lines 1. A. androsaemifolium
 aa. Corolla 2-4 mm long, greenish-white, without pink lines 2. A. cannabinum

1. A. androsaemifolium L. var. incanum A. DC. (var. glabrum AA.; A. scopulorum Greene) -- Dogbane, Flytrap (Herbe à puce, Gobe-mouche) -- Dichotomously branched, the stem 3-7 dm high, overtopping the branches. Main leaves mostly ovate or su-

borbicular, 5-6 cm long, cuneate to rounded at base, more or less pubescent below, short petiolate. Flowers campanulate, mostly drooping or pendent. Calyx lobes deltoid or lanceolate, 1/3 or 1/4 the length of the corolla tube. First half of summer. Open places, mostly on hillsides.--Mack-Aka, NF, NS-BC, US, (CA) -- Var. Woodsonii Boivin -- Generally smaller and with erect fruits. Mostly 2-4 dm high. Leaves about 2-4 cm long, pubescent below, often subcordate at base: Waterton.--swAlta-BC, US -- Var. pumilum Gray -- Like the last, but glabrous throughout. Cypress Hills.--seAlta-BC, US.

There has been some tergiversation as to the application of var. androsaemifolium. It was originally described as having leaves glabrous on both faces by Linnaeus and the name was used in that sense until Woodson, *Rhodora* 34: 30-31. 1932 pointed out that the glabrous phase was known only from the western parts of North American, well outside the area of origin of the material available to Linnaeus. Woodson concluded that the typical phase cannot be anything but the common and pubescent eastern plant later described as var. incanum by De Candolle. However it was pointed out by Boivin 1966 that glabrous plants do occur also in eastern Canada and the glabrous specimen of the Hortus Cliffortianus cannot be ignored. We have accordingly returned to the older practice of distinguishing a var. incanum from the typical and glabrous var. androsaemifolium.

1. X. A. medium Greene -- Very variable hybrid of our two species. Commonly with narrower leaves than the above and rounded to cuneate at base, often petiolate, but usually glabrous. Calyx lobes most often as long as the corolla tube. Flowers variable, mostly large and white to pink-lined, but usually tubular with erect lobes.--NF, NS, NB-BC, US.

2. A. cannabinum L. var. hypericifolium Gray (nec Aiton) Gray; A. cannabinum AA.; A. sibiricum Jacq., var. cordigerum (Greene) Fern., var. salignum (Greene) Fern.) -- Indian Hemp (Chanvre sauvage) -- Coarser, about 1 m high, with opposite branching and the branches overtopping the stem at anthesis. Glabrous throughout. Stem leaves mostly 6-8 cm long, sessile, subcordate. Branch leaves smaller and narrower. Flowers 2-4 mm long, tubular, yellowish-white, with long calyx lobes. Late spring to mid-summer. Shores and open places.--Mack, NF, NS, NB-BC, US -- F. arenarium (F.C. Gates) Boivin (A. sibiricum Jacq. f. arenarium (F.C. Gates) Fern.) -- Half smaller and decumbent at base. Shores subjected to violent spring floods.--NF, NS, NB-O, S-Alta, (US).

Usually subdivided into two species, each with two varieties, but as pointed out by Boivin 1966 the distinction is not realistic and the entity currently distinguished as A. cannabinum var. glaberrimum A.DC. is not substantially distinct from the typical phase of A. sibiricum. Hence the present usage.

53. ASCLEPIADACEAE

(MILKWEED FAMILY)

Pollen grains adnate into pollinia in the manner of the APOCYNUM

Orchidaceae. Pollinia attached in 2's to black translators. Anthers and stigmas fused together to form a platform termed "gynostegium". Otherwise as the Apocynaceae and equally productive of an abundant milky juice.

1. ASCLEPIAS L.

MILKWEED

Complex flower with a supplementary pseudo-corolla termed a "corona". This corona is formed of 5 large, petaloid, conspicuous hooded appendices which arise from the back of the largely hidden filaments of the anthers. Each hood bears inside a secondary appendix termed a "horn", from its obvious shape.

a. Leaves filiform, verticillate 5. A. verticillata
 aa. Leaves broader and essentially alternate to

opposite.

b. Flower purplish.

c. Glabrous or nearly so 1. A. incarnata

cc. Velvety puberulent throughout.

d. Hoods very long and showy,

over 1 cm long 4. A. speciosa

dd. Hoods less than half as long 3. A. syriaca

bb. Flower greenish to yellowish-white.

e. Stem coarsely spreading-hirsute... 7. A. lanuginosa

ee. Stem finely recurved-puberulent.

f. Hoods overtopping the gynostegium

by about half their length.... 2. A. ovalifolia

ff. Hoods much lower, about reaching
 the level of the gynostegium ..

..... 6. A. viridiflora

1. A. incarnata L. var. incarnata -- Swamp-Milkweed --
 With a showy terminal umbel (or corymb of umbels) of deep purple flowers. Glabrous except in the inflorescence. Leaves lanceolate to narrowly lanceolate, opposite or sometimes verticillate in the inflorescence. Flowers less than 1 cm long. Fruit glabrous and spineless. Mid summer. Shores and ditches. -- NS-sMan, US.

Mentioned for Saskatchewan by Britton 1913 and Groh 1947, but not in the more recent floras. Source of report is not known to us.

In our variety the stem is glabrous and the leaves are glabrous or nearly so below. In Nova Scotia, and more locally inland, there occurs a var. pulchra (Ehrh.) Pers. more or less pubescent on the stem and both faces of the leaves; the latter are also often larger.

2. A. ovalifolia Dcne. -- The common prairie species, the flowers whitish and the stems usually less than 5 dm high. Finely recurved pubescent throughout. Leaves very variable, mostly ovate and opposite. Umbels loosely flowered. Peduncles green, 1.5-3.0 cm long. Fruit spineless. First half of summer. Well drained prairies, often on sandy soil. -- wO-Alta, US.

3. A. syriaca L. var. syriaca -- Milkweed, Silkweed (Cotonnier, Cochons de lait) -- A coarse sticky herb with dense globular clusters of purple flowers. About 1 m high and densely short glandular-pubescent throughout. Leaves 1-2 dm long, about oblong, opposite. Peduncles purple, 2-3 cm long. Fruit densely covered with soft spine-like projections. First half of summer. Floodplains. -- NS-sMan, US.

In var. syriaca the stem leaves are mainly subcordate at base. To the south of us it is largely replaced by a var. kansana Palm. & Stey. with leaves rather truncate at base and fruits covered with thinner and $\frac{1}{2}$ filiform spine-like projections.

Saskatchewan is included in the range given by Fernald 1950, but we found no corresponding specimen at HUH in 1965.

A. syriaca x speciosa was listed by Löve 1959 for southern Manitoba on the basis of J.P. Bernard, Otterburne (MSM; DAO, photo). This specimen is not obviously different from typical A. syriaca.

4. A. speciosa Torrey -- Very conspicuous flowers, with the hood elongated to 10-15 mm. Much like the preceeding, but more densely pubescent, becoming white-lanate in the inflorescences. Leaves ovate to oblong. Peduncles 2-3 cm long. Overall length of the flower around 2 cm. Pods reputedly spiny, like the preceeding, but none of our material is fruiting. Early to mid-summer. Wetter spots in the prairie; occurring in widely scattered colonies, often along roadsides, but seems to be native. -- sMan-sBC-US.

5. A. verticillata L. -- Leaves linear-filiform and mostly verticillate in whorls of about 5-6. Stem 1-6 dm high, more or less pubescent in lines. Leaves glabrous to puberulent, strongly revolute, numerous. Peduncles 1 cm long or less. Flowers small, greenish-white, in a terminal corymb or panicle of umbels. Fruit glabrous and spineless. Mid-summer. Prairies on chernozems; rare, from Estevan eastward. -- swO-sMan-seS, US, (CA).

6. A. viridiflora Raf. var. viridiflora (var. lanceolata (Ives) Torrey, var. linearis (Gray) Fern.; Acerates angustifolia (Nutt.) Dcne.; Acerates lanuginosa AA.; Acerates viridiflora (Raf.) Eaton, var. lanceolata (Ives) Gray, var. linearis Gray) -- Green Milkweed. -- Hoods not developing horns. Exceptionally variable. 2-6 dm high. Puberulent throughout. Leaves lanceolate to long-linear, mostly opposite. Umbels mostly 2-3, rather densely flowered, axillary, or one of them sometimes terminal. Peduncles 1.0-1.5 cm long. Flowers greenish-white. Fruit spineless. First half of summer. Sandhills. -- O-S-(sAlta), US -- Var. obovata (Ell.) Torrey (A. viridiflora AA.) Leaves broader, ovate to oblong-lanceolate. -- (O)-Man-S-(Alta), US.

Var. obovata is of doubtful value. It might be nothing more than an ecological variant.

7. A. lanuginosa Nutt. (Acerates lanuginosa (Nutt.) Dcne.)

-- Inflorescence a single terminal umbel. Otherwise similar to the preceding, but coarsely hirsute throughout. Leaves \pm lanceolate, alternate to subopposite. (Early summer?). Sandhills of the Agassiz delta. -- swO-scMan, US.

A rather rare plant in Canada, it has been collected only at Sidney, Aweme, Pointe Pelée and Grand Bend.

Order 31. RUBIALES

Like the Loganiales, but the ovary inferior. Leaves opposite or verticillate.

- a. Herbs 54. Rubiaceae
 aa. Shrubs 55. Caprifoliaceae

54. RUBIACEAE

(MADDER FAMILY)

Leaves either verticillate or opposite and stipulate.
 Mostly woody plants with entire leaves, but ours all herbs.

- a. Leaves opposite 1. Houstonia
 aa. Leaves verticillate.
 b. Flowers in an open cyme 3. Galium
 bb. In an involucre head 2. Asperula

1. HOUSTONIA L.

BLUETS

Small herbs with 4-merous, opposite leaves and interpetiolar stipules, that is stipules alternating with the leaves, there being only 2 stipules for each pair of leaves, instead of the normal pair of stipules to each leaf.

1. H. longifolia Gaertner var. longifolia -- Bluets -- Tufted perennial, the erect stems up to 2 dm high. Leaves 1-3 cm long, \pm lanceolate, glabrous or sometimes very minutely scabrous along the margin. Flower 5-8 mm long, funnelform, pale blue. Late spring and very early summer. Dry and sandy prairies. -- sQ-seS, US -- Var. Mugci Boivin -- Basal leaves sparsely and irregularly ciliate along the petiole and towards the base of the blade. -- sMan-cAlta.

A study of the genus published in Rhodora 61: 157-180, 188-207. 1959 dealt primarily with the U.S. species. We found the Canadian material to fall readily into two species, an eastern H. caerulea L. and a more widespread H. longifolia. The latter could be further subdivided on minutiae of pubescence into four geographical variations as follows:

- a. Basal leaves glabrous and eciliate or at most very finely scabrous var. longifolia
 aa. More or less ciliate.
 b. Ciliate with hairs 0.3-0.5 mm long; stem nearly always glabrous var. ciliolata
 bb. Ciliation of shorter hairs; stem glabrous or more commonly hirsute.

- c. Stem glabrous at least along the internodes; rosette leaves irregularly and sparsely ciliate var. Musci
- cc. Lower part of the stem hirsute on the internodes and along the lines of decurrence; leaves uniformly short-ciliate...var. Soperi

Two varieties occur in the U.S.A. Var. longifolia has the basal leaves quite glabrous or at most finely scabrous with minute hairs less than 0.1 mm long and barely detectable with the hand lens; stems mostly glabrous or sometimes more or less hirsute along the lines of decurrence, especially in the vicinity of the nodes. This first variety also occurs in Canada in Quebec (Richmond Co.), Ontario (Kenora, Middlesex, Rainy River and Simcoe Cos.), Manitoba (Macdonald, Marquette, Neepawa, Provencher and Springfield districts) and Saskatchewan (Melville, Rhostern and Yorkton districts).

Var. ciliolata (Torrey) stat. n., H. ciliolata Torrey, Fl. N. US. 1: 173.1824; H. canadensis W. Basal and stem leaves regularly ciliate with longer hairs. Stem nearly always glabrous. This second variety is much more restricted in its Canadian distribution; we know it only from the following Ontario counties: Bruce, Frontenac (Westbrook), Lincoln, Northumberland and Welland.

The last two varieties are strictly Canadian in their distribution and by their morphology they seem to be intermediate between the first two varieties. Yet it is remarkable that these two Canadian varieties are absent from the area of overlap of the first two varieties.

Var. Musci var. n. Folia rosettae sparse et irregulariter ciliata, saepius ad basas et secundum petiolum. Caulis glaber vel ad basas ± hirsutus secundum lineas, praecipue ad nodos, glaber tamen in internodiis. Type: Boivin, Moss, Turner & Alex 10176, Bruderheim, 2 miles north, Pinetum Banksianae on fixed sand dunes, Aug. 18, 1952 (DAO); Paratypes: Manitoba: H. Marshall 34, Brandon, (DAO); Boivin & Dore 8263, Shilo, (DAO); F. Fyles, Treesbank, (DAO); H. Groh, Aweme, "Bluets", (DAO); Frankton & Bibbey 97, Shilo (DAO); Boivin & Alex 9290, Saint-Lazare, (DAO); J.S. Rowe 510, East Gate, Riding Mountain National Park, "Bluets", (DAO); Löve & Love 5546, Pointe du Bois, (DAO); Boivin & alii 10658, Brokenhead, (DAO); Boivin, Laishley & Schindler 13042, Réserve Forestière Whiteshell, coté nord du lac Falcon, (DAO); SASKATCHEWAN: A.J. Breitung 591, McKague, (DAO); A.J. Breitung s.n., McKague, (DAO); G.W. Sel-leck 76, Esterhazy, (DAO); A.J. Breitung 8475, 12 mi. n. of Meadow Lake (DAO); R.C. Russell 54447, Macdowall (DAO); Ledingham & Hudson 910, Price Albert (DAO); Boivin & Breitung 6114, Nisbet Provincial Forest (DAO); Senn, Groh & Russel 2803, St. Louis (DAO); ALBERTA: E.H. Moss 1002, near Edmonton, (DAO); E.H. Moss 10257, north of Ft. Saskatchewan (DAO).

So named after the late E.H. Moss, author of an excellent manual on the flora of Alberta.

Var. Soperi var. n. Folia rosettae breviter ciliata pilis 0.2-0.3 mm. Caulis ad basas hirsutus secundum lineas et in internodiis. Type: J.H. Soper 588, Turkey Pt., sandy banks along edge of dry upland woods, July 4, 1938 (DAO); Paratypes: ONTARIO: T.W. Burgess, Burford (DAO); Victorin, Rolland & Dominique 46377, Normandale, (DAO); Victorin, Rolland & Dominique 46424, Saint Williams, (DAO); W.G. Dore 44-27, Walsingham, (DAO); J. Dearness, West of Simcoe (DAO).

2. ASPERULA L.

Much like Galium with a well defined tube to the corolla.

1. A. ARVENSIS L. -- Quinsywort (Rapette) -- Inflorescence a glomerule of pale blue flowers subtended by an involucre of very long ciliate and narrowly oblanceolate bracts. Nearly glabrous annual with a red taproot. Leaves in 6's or 8's. (Early summer?) Rare adventive: Delta. -- O-Man, BC, (US), Eur.

Only 2 other localities in Canada: Hamilton and Essondale.

3. GALIUM L.

BEDSTRAW

Fruit geminate, yet born of a single flower. Herbs, often catchy, with verticillate leaves.

- a. Ovary and fruit densely pubescent.
 - b. Leaves in 4's 3. G. boreale
 - bb. Leaves in 6's-8's.
 - c. Main leaves verticillate in 8's 1. G. Aparine
 - cc. Main leaves verticillate in 6's.... 2. G. triflorum
- aa. Ovary glabrous.
 - d. Flowers yellow; leaves strongly revolute, with merely the midnerve showing below..... 4. G. verum
 - dd. White or greenish; leaves flat to merely narrowly revolute along the margin.
 - e. Flowers in many-flowered cymes, on peduncles usually less than 5 mm long 5. G. palustre
 - ee. Flowers in terminal cymes of (1)-2-3-(5) flowers on peduncles usually 5-10 mm long 6. G. trifidum
- 1. G. Aparine L. (var. echinospermum (Wallr.) Farw., var. Vaillantii (DC.) W.G.J. Koch; G. Vaillantii DC.) -- Cleavers, Goosegrass (Gratteron, Herbe collante) -- Annual with the stem leaves mostly 7-8 to a node. Very catchy from being retrorse-scabrous, forming tangles. Leaves linear-oblanceolate, mostly 2-3 cm long. Flowers white in few-flowered axillary cymules. Ovary and fruit densely covered with hooked hispid hairs. All summer. Moist wooded river banks; sometimes weedy. -- (G, Aka, NF, NS, NB)-Q-(O-Man)-S-BC, US, (SA, Eur, Afr, Oc) -- F. spurium (L.) Boivin (var. intermedium (Mér.) Briquet; G. spurium L.) -- Has smooth fruits. Local: Carlea, Waterton. -- sS-swAlta, (US, Eur).

2. G. triflorum Mx. (G. asprellum AA.) -- Trailing Cockspur -- A common forest species with rather large leaves in 6's. In small tufts, the base of the stem rather weak and the stems becoming prostrate and radiating in a rosette of stems. Herbage smooth to scabrous. Leaves largest, lanceolate, commonly 1 cm wide. Flowers in axillary cymes and terminal panicles. Ovary and fruit hispid with hooked hairs. First half of summer. Common in deciduous forests. -- G, K-Aka, L-SPM, NS-BC, US, CA, Eur.

3. G. boreale L. (G. septentrionale R. & S.) -- Crosswort -- Ovary and fruit densely hispid, but the hairs not hooked. Stems stiffly erect and smooth to slightly scabrous. Leaves in 4's, the main ones conspicuously 3-nerved with white and parallel nerves. Flowers white or nearly so, in dense terminal panicles. Early summer. Common in prairies and quite showy at flowering time. -- (G), Mack-Aka, NS, NB-BC, US, Eur.

4. GALIUM VERUM L. -- Bedstraw, Our Lady's Bedstraw (Grappelle, Herbe à la Vierge) -- The yellow flowers small but numerous and growing in rather large and dense colonies that are quite noticeable at flowering time. Leaves linear, strongly revolute, the main ones in 6's or 8's. Flowers in terminal panicles. First half of summer. Sometimes cultivated and locally naturalized at Holland and Calgary. -- NF-(SPM, NS), Q-Man, Alta-BC, (US, Eur, Afr).

5. Galium palustre L. -- A fine and weak herb, rather catchy and forming tangled masses in wet places. Stem usually slightly scabrous, glabrous at the nodes. Stem leaves linear to oblanceolate, some of them in 4's, but usually also a few in (5)-6's. Flowers numerous, in many-flowered cymes and more or less forming a terminal panicle. Pedicels usually less than 5 mm long. Corolla lobes 4, up to 1 mm long. First half of summer. Wet places. Reported for southern Manitoba and northern Alberta. -- (Y, NF-SPM, NS-NB)-Q-O-(sMan, nAlta, US, Eur, Oc).

Reports from our area (and from Yukon) need to be confirmed. The only sheet we have seen from west of Ontario was from Manitoba (DAO) and it has been revised to G. trifidum. The same may possibly apply to other reported western collections.

6. G. trifidum L. (G. labradoricum Wieg.) -- Dyer's Cleavers, Goosegrass (Tissavoyanne rouge) -- Much like the preceding and not always clearly distinct, but rather fewer-flowered. Usually somewhat scabrous. Stem leaves nearly always all in 4's. Inflorescence more diffuse, the flowers solitary or in cymes of 2-3-(4) flowers on very widely divergent pedicels, the latter commonly 5-10 mm long in fruit. Corolla lobes 3-(4), 0.5-1.5 mm long. First half of summer. Wet shaded places. -- (G, K)-Mack-(Y)-Aka, L-(NF)-SPM, NS-PEI-(NB)-Q-O-(Man)-S-(Alta)-BC, US, (Eur) -- F. halophilum (Fern. & Wieg.) Boivin -- Glabrous or nearly so and slightly fleshy. Seashores. -- L-NF-(SPM), NS-PEI-(NB)-Q, nMan, (US).

Usually subdivided into a series of microspecies which appear to us to be so many arbitrary distinctions within a mor-

phological and geographical continuum.

55. CAPRIFOLIACEAE (HONEYSUCKLE FAMILY)

Shrubs with opposite leaves, the stipules nearly always lacking. Leaves entire or commonly toothed to lobed or even compound.

- a. Leaves compound 1. Sambucus
- aa. Leaves simple.
 - b. Leaves entire.
 - c. Flowers twinned and sessile at the end of a common peduncle 5. Lonicera
 - cc. Flowers not in 2's but in small axillary clusters 3. Symphoricarpos
- bb. Leaves serrated to lobed.
 - d. Low and almost herbaceous, with leaves small, less than 2 cm long 4. Linnaea
 - dd. Quite woody and larger-leaved.
 - e. Flower rotate; stigma sessile 2. Viburnum
 - ee. Flower funelform; style rather long 6. Diervilla

1. SAMBUCUS L.

ELDER

Shrubs with opposite and pinnate leaves. Flower similar to Viburnum, but the stigma borne on a style. Fruit a 3-seeded berry.

1. S. racemosa L. var. pubens (Mx.) Watson (S. pubens Mx.) -- Catberry, Elder (Sureau rouge, Sirop rouge) -- The one common shrub with opposite and pinnate leaves. Mostly 1-3 m high. Twigs with large brownish pith. Leaflets broadly lanceolate, mostly 5. Inflorescence a panicle 3-5 cm wide, with a well defined axis, stronger than its branches. Flowers white, darkening in the herbarium. Fruits bright red and small. Early summer. Moist spots in open woods, Saskatoon eastward. -- NF, NS-cS, US -- F. xanthocarpa Cock. -- Fruit yellow. Local: Delta. -- Man, (US) -- Var. arborescens (T. & G.) Gray (var. melanocarpa (Gray) McMinn.; S. melanocarpa Gray) -- A coarser shrub, 2-6 m high. Leaves more often glabrous. Inflorescence broader. Fruit dark red and somewhat purplish. -- Aka, Walta-BC, WUS.

There is a fair amount of morphological overlap between our two varieties and a substantial proportion of the specimens could not be assigned to one variety or the other on the basis of their morphology alone. We have however interpreted all the more western references to S. pubens as applicable to var. arborescens.

There is also a fair amount of overlap in the diagnostic characters of our varieties and the eurasian var. racemosa. These are three very weak varieties at best, although they are often treated as so many species.

S. canadensis L. has been reported for our area from Shoal Lake. However all 3 collections (WIN; DAO, photo) examined

from that area have been revised to S. racemosa var. pubens.

2. VIBURNUM L.

Flower regular, rotate, small and 5-merous, the stigma sessile and the fruit reduced to a single-seeded berry (i.e.: a drupe).

- a. Leaves dentate, pinnately veined.
 - b. Finely serrate 1. V. Lentago
 - bb. Coarsely toothed 2. V. Rafinesquianum
- aa. Leaves lobed, palmately veined.
 - c. Inflorescence on a short side branchlet bearing a single pair of leaves 3. V. edule
 - cc. Flowering branchlets longer and bearing 2 pair of leaves 4. V. Opulus

1. V. Lentago L. -- Nannyberry, Wild Raisin (Alisier, Bourdaine) -- Inflorescence about 4-rayed and nearly sessile at the end of a branch which is naked below, but bears 2-4 pairs of leaves closely inserted just below the inflorescence. Leaves ovate, finely serrate, abruptly acuminate. Flowers small, white, in large corymbs. Fruit blue. Late spring. Deciduous woods, especially galerie-forests. -- NB-seS, US.

2. V. Rafinesquianum Schultes var. Rafinesquianum (V. affine Bush var. hypomalacum Blake; V. pubescens AA.) -- Shrub with opposite leaves, coarsely dentate and soft villous below. Leaves ovate. Flowering shoot elongate. Inflorescence on a long peduncle, with about 7 primary rays. Fruit nearly black. Early summer. Dry woods. -- Q-sMan, US.

The more southern var. affine (Bush) House has the leaves glabrous below or at most pubescent along the main nerves. We know it in Canada only from the Grand Bend on lake Huron.

3. V. edule (Mx.) Raf. (V. eradiatum (Oakes) House; V. pauciflorum La Pylaie) -- Pimbina, Squashberry (Pimbina, Pimbina) -- Rather inconspicuous shrub with few-flowered inflorescences of small flowers, borne on a short lateral shoot which bears only one pair of leaves and matures very few fruits, often only one. Leaves vaguely pentagonal, somewhat 3-lobed and coarsely serrate. Fruit bright red-orange. Late spring to early summer. Common forest species, especially in boggy woods. -- K-Aka, L-SPM, NS, (NB)-Q-BC, US.

Supposed to range as far as northeast Asia according to Fernald 1950, but Hultén 1949 makes no such mention and it is not included in the Flora U.R.S.S. (vol. 23).

4. V. Opulus L. var. americanum Aiton (ssp. trilobum (Marsh.) R.T. Clausen; V. trilobum Marsh.) -- Pimbina, Squashberry (Pimbina, Quatre-saisons des bois) -- Remarkable by its large inflorescences of dimorphic flowers, the peripheral ones being many times larger, sterile and very showy. Leaves deeply 3-lobed and more or less dentate. Inflorescence on a long peduncle. Flowers white, the sterile ones asymmetrical, the outer lobes being larger and about twice as long as the inner

one. Early summer. Open woods. -- NF-(SPM, NS-NB)-Q-S-(Alta-BC), US.

Typically the transatlantic var. Opulus has filiform stipules attenuate at tip; petiole bearing towards its summit one or more coarse glands, these sessile, discoid, concave and mostly 1.0-1.5 mm wide; leaves uniformly velvety-pubescent below. Our cisatlantic variety has shorter stipules, 5 mm long or less, and capitate at tip; glands smaller, capitate, stipitate, 0.2-1.0 mm wide and mostly convex; leaves glabrous to velvety below, commonly pubescent only along the nerves. However both varieties are highly variable in respect to all the characters mentioned and, undoubtedly, geography plays an important role in the determination of many specimens.

Early reports by Macoun 1884 of V. acerifolium L. and V. cassinoides L. from Saskatchewan have long since been discounted.

3. SYMPHORICARPOS DuRoi

SNOWBERRY

Flower campanulate, not twinned, regular or nearly so; style elongate. Fruit a 2-seeded berry.

- a. Stamens and style included; berry drying
white 1. S. albus
aa. Longer and more or less exserted; berry
drying purplish black 2. S. occidentalis

1. S. albus (L.) Blake (var. laevigatus (Fern.) Blake, var. pauciflorus Robbins; S. pauciflorus (Robbins) Britton; S. racemosus Mx.) -- Snowberry (Graine d'hiver) -- Shrub with nearly round, entire leaves and fat waxy-white berries drooping at the end of the branches. Forms large colonies. Glabrous or pubescent. Leaves ovate to orbicular, mostly 1-2 cm long, sometimes lobed on leading shoots. Flowers \pm 5 mm long, mostly whitish, subsessile, borne in short axillary or terminal racemes. Corolla lobes usually shorter than the tube, the style and stamens usually not exserted from the tube. Early summer. Common, especially in and around bluffs. -- sMack, Aka, NS-(PEI)-NB-BC, US.

Nearly glabrous specimens (var. laevigatus) are sporadic throughout the range, but they become the more common type west of us. They also tend to bear larger fruits, up to 1.0-1.5 cm across.

Since the days of Hooker it has been traditional to divide our material into a smaller S. albus and a larger S. occidentalis. Both are common in our area, they will often grow together; they seem to occupy about the same kind of habitats, and they intergrade to a limited extent. It might be better to treat them as varieties of a single species. The range of S. occidentalis is essentially included within that of the somewhat more widely distributed S. albus.

2. S. occidentalis Hooker -- Wolfberry (Graine de loup) --

Tending to be more vigorous and larger-flowered than the first. Leaves sometimes small, more commonly about 3-5 cm long. Inflorescences tending to be more heavily flowered. Corolla mostly 7-8 mm long and mostly pink or pinkish. Corolla lobes mostly longer than the tube. Berry \pm 6 mm wide, waxy-white like the first when fresh, but discolouring in drying. First half of summer. Mostly around Aspen bluffs. -- Mack, Q-BC, US.

4. LINNAEA L.

TWIN-FLOWER

Peduncle forked and each branch bearing a drooping flower. Corolla regular, funnel-shaped. Stamens only 4; the flower otherwise 5-merous.

1. L. borealis L. var. longiflora Torrey (var. americana (Forbes) Rehder; L. americana Forbes) -- Twinflower, Pink Bells -- Trailing shrub with forked erect peduncles, each bearing two flowers. Almost herbaceous, the stem and branches wiry. Leaves roundish, usually with 2 pairs of low teeth. Peduncle very long, with a pair of bracts at the fork. Corolla pink. Early summer. Coniferous woods. -- G, K-Aka, L-SPM, NS-BC, US -- F. candicans House -- Flowers white; a local form. -- O, Alta-BC, (US).

Var. borealis is Eurasian and Alaskan; it has shorter corolla, mostly 7-10 mm long, with a shorter tube flaring more abruptly. Not always a clear-cut distinction. Our American plants are usually further subdivided on corolla size into a larger var. longiflora west of the Rockies and a smaller and more eastern var. americana. Actually both american varieties have about the same range of variation and the difference between the two is only one of frequency, longer flowers being decidedly more frequent west of the Rockies. This may be expressed succinctly as follows:

Var. americana: flowers (8)-10-12-(15) mm long.

Var. longiflora: flowers (9)-12-15-(16) mm long.

Throughout this flora we have systematically denied taxonomic recognition to taxa with an essentially statistical basis such as the above. We have insisted on a minimum of morphological discontinuity as a sine qua non basis for the recognition of a taxon.

5. LONICERA L.

HONEYSUCKLE

Flowers borne 2 together at the end of a common peduncle. Ovaries free to fused. Corolla elongate, more or less zygomorphous, but free from its twin, even when the ovaries are fused. Leaves entire.

a. Flowers in a short terminal spike subtended by a pair of connate leaves.

b. Leaves thickish, usually sessile and

glaucous above 7. L. dioica

bb. Leaves thin, not glaucous above, the

middle ones short-petioled 8. L. hirsuta

SYMPHORICARPOS

- aa. Flowers all axillary; no connate leaves.
 c. Ovaries fused, ripening into a single berry 1. L. caerulea
 cc. Ovaries free, ripening into a pair of berries.
 d. Involucre of 4 large and showy bracts 6. L. involucrata
 dd. Involucre small relative to the ovary or fruit.
 e. Branchlets fistulose except at the nodes, the brown pith merely lining the empty core.
 f. Leaves and peduncles glabrous 3. L. tatarica
 ff. Lower leaf faces and peduncles densely pilose 2. L. Morrowii
 ee. Branchlets solid, the white pith filling the core.
 g. Leaves glabrous or lightly long pilose below 4. L. utahensis
 gg. Densely puberulent at least below 5. L. oblongifolia

1. L. caerulea L. var. villosa (Mx.) T. & G. (L. coerulea sphalm.; L. villosa (Mx) R. & S. var. Solonis (Eaton) Fern.; Xylosteum caeruleum (L.) Dum.-Cours.) -- Fly-Honeysuckle -- Ovaries fused. Leaves oblong, usually more or less villous at least below. Flowers yellow, appearing with the leaves. Ovary subtended by a pair of elongate bracts, about 5 mm long. Berry blue. Second half of spring. Common in bogs. -- seK, L-SPM, NS-Alta, US.

The eurasian var. caerulea is generally somewhat taller, it tends to be less pubescent and the corolla lobes are a bit shorter than the tube. In our variety the corolla lobes are somewhat longer than the tube.

Many other american varieties have been described but as far as we can determine they run freely into one another and are essentially sympatric, except perhaps a more western var. caurina (Fern.) Boivin which is reputed to have red berries. But we have yet to see any mature fruits of the latter.

2. L. MORROWII Gray -- Quite similar to the more common L. tatarica, but more pubescent. Twigs and peduncles densely pubescent. Leaves lightly to densely pubescent above, densely pubescent to grayish-tomentose below. Inner bracts about as long as the ovary. Flowers pubescent, white, turning orange-yellow, thus seeming to be of two different colors when the shrub is in full bloom. Berries orange to red. Late spring. Sometimes planted and apparently escaped in the coulée of the South Saskatchewan at Saskatoon. -- Q-O, S, US, Eur.

2X. L. BELLA Zabel -- Hybrid with the next and much more lightly pubescent to nearly glabrous. Flowers pink, turning yellow. Inner bracts shorter than the ovary. Sometimes planted

and exceptionally escaped or persistent: Wolseley. -- NB-O, S, US, Eur.

3. L. TATARICA L. (L. tartarica sphalm.; Xylosteum tataricum (L.) Med.) -- Honeysuckle, Twin Sisters (Chèvrefeuille)-- Glabrous throughout and commonly planted. Leaves oblong to cordate. Inner bracts less than half as long as the ovary. Flowers whitish pink, glabrous outside. Berries red or yellow. Late spring. Often planted and readily escaping, although not aggressive. -- NB-S-(Alta), US.

4. L. utahensis Watson -- Red Twinberry -- Inner bracts of the ovary minute or lacking, the outer ones present. Leaves oblong to cordate, usually ciliate and somewhat pilose below. Otherwise glabrous. Flowers cream-yellow, appearing with the leaves. Berry red. Late spring. Wet coniferous woods. -- swAlta-sBC, US.

5. L. oblongifolia (Goldie) Hooker (Xylosteum oblongifolium Goldie) -- Fly-Honeysuckle -- Leaves broadly oblanceolate. Densely puberulent throughout, including the corollas, but the leaves sometimes nearly glabrous above. Outer bracts lacking, the inner very short. Flower pale yellow, often pink tinged. Berry deep red, drying blue. Late spring. Edge of bogs and wet open woods. -- (NB)-Q-ecS, US.

6. L. involucrata (Rich.) Banks var. involucrata (Distegia involucrata (Rich.) Cock.) -- Fly-Honeysuckle, Black Twinberry -- Very showy in fruit with each pair of large deep purple berries subtended by 4 large purple bracts. Leaves ovate to obovate, often acuminate, glabrous above, pilose to glabrous below. Bracts glandular, smaller and only slightly purplish at flowering time. Corolla yellow, glandular. Early summer. Occasional in wet coniferous woods. -- K, Y-Aka, Q-BC, US.

Our typical variety is usually 2 m high or less, the herbage glabrous or somewhat pubescent, the flowers 1.0-1.5-(2.0) cm long, the stamens equalling the tube or slightly exserted. On the other hand, the californian var. Ledebourii (Esch.) Jepson is generally taller, more pubescent, the flowers 1.5-2.0 cm long and the stamens included.

7. L. dioica L. var. glaucescens (Rydb.) Butters (L. glaucescens Rydb.) -- Red Honeysuckle -- Shrub climbing by its loosely twining stems. Leaves thickish, glaucous above, the middle ones subsessile, the upper two connate into a huge saucer-shaped involucre, oblong to suborbicular, subtending the terminal spike. Inflorescence a peduncled terminal spike of verticillate flowers, with 3 pairs of sessile flowers to a verticil. Flowers longest, yellow and somewhat pinkish tinged. Berry red. Late spring and early summer. Woods. -- Mack, Q-BC, US.

Leaves villous below, glabrous above. The more eastern var. dioica has eciliate leaves glabrous on both faces.

Two more phenotypes, var. dasygyna (Rehder) Gleason and var. orientalis Gleason, are also distinguished sometimes. The typically glabrous ovary is densely glandular in var. orientalis, a variant known to occur in Canada mainly in southern Ontario, but also sporadically from southwestern Quebec to Narcisse,

Manitoba, and Saskatoon, Saskatchewan. Intermediates with sparsely or irregularly glandular ovary are more common than well characterized glandular specimens. And this glandulosity is in no way linked to the variation in leaf pubescence. From this we can conclude that var. orientalis is a sporadic variation of no particular significance. In var. dasygna the ovary is not only glandular like var. orientalis but also pubescent. It is a rather uncommon phenotype which occurs sporadically and seems to be of no more significance than var. orientalis itself.

8. L. hirsuta Eaton var. Schindleri Boivin -- Hairy Honey-suckle -- This variety is intermediate to the previous species from which it differs by its thinner leaves, not glaucous above, the middle ones with a petiole 5-10 mm long. Early summer. Rocky woods at Falcon Lake. -- Q-seMan.

As pointed out by Scoggan 1957, earlier Manitoba reports were based on misidentifications. A similar explanation probably accounts for Fernald 1950 extending the range to Saskatchewan.

Var. Schindleri var. n. foliis superne glabris vel fere glabris, ad basas et ad nervum medium tantum paullum pilosum. Type: Boivin, Laishley & Schindler 13058, Lac Falcon, Réserve Forestière Whiteshell, près d'un ruisseau de montagne, 24 juin 1959 (DAO). Paratypes: QUEBEC: J. Richard, canton Rémigny (QFA); Dutilly & Lepage 35179, rivière Nottaway (DAO); ONTARIO: Taylor, Hosie & Fitzpatrick 1192, Sault Ste. Marie (DAO); Bartlett & F. Richards 464, Mamainse Point (DAO); C.E. Garton 1831, Little Pigeon Bay (DAO).

Throughout most of their overlapping range, L. dioica and L. hirsuta are easily distinguished. In the first the leaves are glabrous on both faces, or at least above, and the twigs are glabrous. In the latter the young twigs are glandular and pubescent and the leaves are hirsute or velvety below, pilose or lightly strigose over the whole of the upper surface, except the involucre leaves which are most often glabrous above. In L. dioica the more eastern var. dioica grades into our var. glaucescens in which the leaves are villous below, glabrous above. True, the odd specimen of var. glaucescens may be slightly pubescent above towards the base of the limb or near the mid-nerve, but such variants are easily referred to var. glaucescens by their rather thick leaves, sessile or nearly so and strongly glaucous above.

A more puzzling intermediate occurs in the northern part of the range of L. hirsuta in which var. interior Gleason, the normal phase of the species in eastern Canada, grades into a var. Schindleri fairly intermediate to L. dioica. By its large and thin leaves, dark green and little if at all glaucous, by its middle leaves borne on petioles 5-10 mm. long, this intermediate is clearly related to L. hirsuta. But its young twigs are less pubescent than in L. hirsuta, or even completely glabrous and leaves are glabrous or nearly so above, thus verging towards L. glauca.

It is a pleasure to associate the name of this new variety

with the name of a resident amateur naturalist from Falcon Lake. His kind help made it possible to locate rapidly quite a few of the highly localized plants of southeastern Manitoba.

6. DIERVILLA Duhamel

Flower rather like that of Lonicera, but each flower borne on its own peduncle.

1. D. Lonicera Miller, var. Lonicera -- Bush-Honeysuckle, Life-of-Man (Herbe bleue, Chèvrefeuille d'Acadie) -- The inferior ovary linked to the calyx by a thin neck 3-4 mm long. Low shrub. Leaves large, ovate-lanceolate, serrate, acuminate, glabrous or nearly so. Inflorescence terminal. Flower yellow, often red-tinged. First half of summer. Dry woods. -- NF-SPM, NS-ecS, US.

As early as 1833 Hooker reported this to range west to the Rockies and the report has been accepted by various later authors. It has not been confirmed by more recent collections as they are all from central Saskatchewan and eastward. A single sheet from Alberta, McVickar, L. Slave Lake, 1911 (TRT; DAO, photo) proved to be Lonicera involucrata.

The magnilacustral var. hypomalaca Fern. has the leaves abundantly pilose below.

Order 32. VERBENALES

Like the Loganiales, but the corolla more or less zygomorphic and the stamens usually reduced in number, most often to 4 or 2, and fewer than the corolla lobes. Ours are all herbs with opposite leaves.

a. Flowers alternate to very crowded 56. Verbenaceae

aa. Flowers obviously opposite in a lax spike 57. Phrymaceae

56. VERBENACEAE (VERVAIN FAMILY)

Calyx actinomorphic. Rather similar to the Labiatae, but the ovary not lobed and the style terminal. Corolla 5-lobed, but the stamens only 4 and dimegueth or even only 2.

1. VERBENA L.

VERVAIN

Corolla barely zygomorphic.

a. Leaves serrate.

b. Inflorescence lax; flowers white..... 1. V. urticifolia

bb. Inflorescence dense; flowers blue 2. V. hastata

aa. Leaves deeply divided 3. V. bracteata

1. V. urticifolia L. (V. urticaefolia sphalm.) -- White Vervain, Bur-Vine -- Resembling the next, but the inflorescence more open, the spike lax and more elongate and the flowers white. Leaves narrowly ovate. Mid summer. Dry and more or less open places: Gainsborough. -- NB-sO, seS, US.

DIERVILLA

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2. Verbena hastata L. -- Simpler's Joy, Iron-weed -- Stiffly erect perennial herb with a terminal panicle of dense spikes of small blue flowers. Leaves lanceolate. Fruit included in the calyx. Mid to late summer. Wet places, usually near shores, west to Wadena and Roche-Percée. -- NS, NB-seS, BC, US.

A sight record for Alberta by Groh 1949 has never been confirmed and is discounted as improbable.

3. V. bracteata Lag. & Rodr. (V. bracteosa Mx.) -- Sprawling annual with heavily bracted terminal spikes. Hirsute. Stem leaves deeply trilobed to pinnatifid, the lobes serrate. Spikes dense. Bracts overtopping the flowers and fruits. Flower blue. All summer. Light or disturbed soils, often weedy. -- O-BC, US, (CA).

57. PHRYMACEAE (LOPSEED FAMILY)

A single species of a rather unusual type and doubtful position. Calyx zygomorphic, with 5 lobes, the lower two minute, the upper 3 prolonged into subulate hooks.

1. PHRYMA L. LOPSEED

A square-stemmed herb with opposite leaves and bilabiate flower, rather resembling a Labiate, but the ovary unilocular and one-seeded, maturing into a single achene.

1. Phryma leptostachya L. -- Lopseed -- Long stiff spikes of flowers that are at first strictly erect, becoming stiffly spreading at anthesis and maturing into closely pendant, catchy fruits. Leaves few, large and thin, broadly ovate, coarsely and irregularly serrate, pubescent. First half of summer. Alluvial woods: Pembina Hills, Portage. -- NB-Man, US, (CA, Eur).

The Far Eastern plants are supposed to be slightly different, var. oblongifolia (Koidz.) Honda (= var. asiatica Hara), a point we have not had the opportunity to check.

The Rutaceae of the order Rutales are not definitely represented in our area. Ruta graveolens L. was reported from Twin Butte, Alta., in the Prov. B.C. Rep. Prov. Mus. 1941: Cll. 1942, and was repeated by Groh 1944 and 1950, but we have not yet checked this point and have no idea if the plant was correctly identified and represented cultivated or escaped material.

Order 33. SAPINDALES

Stamens not on the corolla, but rather perigynous. Shrubs and trees mostly with the leaves compound or sometimes palmately lobed.

- a. Leaves opposite 58. Aceraceae
 aa. Leaves alternate 59. Anacardiaceae

58. ACERACEAE (MAPLE FAMILY)

Flowers dioecious with the petals minute and free or lacking. Carpels 2. Leaves opposite.

1. ACER L.

MAPLE

Fruit a pair of asymmetrical samaras, each like a half propeller.

a. Leaf compound 4. A. Negundo
 aa. Leaf simple.

b. Palmatifid, the lobes rhomboid 3. A. saccharinum
 bb. Palmately lobed, the lobes deltoid to triangular.

c. Inflorescence a racemose panicle.... 1. A. spicatum
 cc. Inflorescence a corymb 2. A. glabrum

1. A. spicatum Lam. -- Whitewood, White Maple (Plaine batarde, Fouèreux) -- Tall shrub with palmately lobed leaves. The lobes 5, those of the lower pair often obscure. Margin serrate. Twigs grayish-pubescent. Leaves pubescent below. Early summer. Aspen-Birch forests. -- (L)-NF-SPM, NS-ecS, US.

2. A. glabrum Torrey var. Douglasii (Hooker) Dippel -- Mountain Maple -- Similar but glabrous and the inflorescence corymbose. Late spring. Coniferous forests at the lower altitudes. -- Aka, swAlta-BC, US.

Var. glabrum from the southern Rockies has smaller leaves, 6 cm wide or less, and more deeply lobed, palmatifid leaves.

3. A. SACCHARINUM L. -- Silver-Maple, Soft Maple (Plaine blanche, Erable blanc) -- Tree with palmatifid leaves. Leaves strongly glaucous below. Lobes rhomboid, broadest near the middle, narrower at base, irregularly and coarsely serrate. Flowers in glomerules. Very early spring. Often planted and exceptionally escaped: Portage, Moose Jaw. -- NB-S, US.

Planted here and there as a shade tree, susceptible of escaping to river shores. Despite many previous Manitoba reports, this tree is not native to the province and every time we tried to follow a lead we always ended up with cultivated trees. In 1951 we came across a single young shoot on the shores of the Assiniboine at Portage-La-Prairie, but in 1959 it had disappeared. The following year we found it to be naturalized in the extensive galerie-forest of the Moose Jaw Creek at Moose Jaw.

4. A. Negundo L. var. Negundo -- Sugar-Maple, Box-Elder, Manitoba Maple (Erable, Erable à Giguère) -- A tree with leaf-green and glabrous twigs. Leaves compound, most commonly with 3 leaflets. The latter ovate to lanceolate, entire to irregularly few-lobed. Inflorescence a panicle. Ovary red, becoming green before the fruit is half grown, the wing becoming green before the fruit is half grown, the blade of the wing becoming green before its dorsal nerve. First half of spring. Galerie-forests; commonly planted, as are also its varieties. -- NS-Man, US. -- F. sanguineum L. Martin -- Young fruit at first purple, the rib of the wing turning green around mid June, the blade remaining purple for another 2-3 weeks. Local: Brandon, Letellier. -- O-Man -- Var. violaceum (Kirchner) Jaeger -- Like the first, but the twigs strongly glaucous. Escaped in Alberta, indigenous further east. -- Mack, NS, NB-sS-nAlta, US -- F. Dorei

Boivin -- Young fruits purple-red, not becoming green until mid-summer, the dorsal nerve being first to turn green. Occasional.
 -- Q-sMan, US -- Var. interius (Britton) Sarg. (Negundo interius (Britton) Rydb.) -- Twigs finely and densely grayish-puberulent.
 -- Mack, (O) - Man-Alta, US -- F. Loeveorum Boivin (f. sanguineum AA.) -- Twigs as in var. interius, fruits as in var. Dorei -- PEI, Man-S.

Var. interius occurs as a native from southeastern Alberta to Lake Superior, naturalized further north and east. Eastern reports for the other varieties are also based on naturalized plants.

59. ANACARDIACEAE (CASHEW FAMILY)

Petals present, 5, free. Carpel solitary. Leaves alternate.

1. RHUS L.

SUMACH

Shrubs with compound leaves. Fruit a drupe.

- a. Leaves pinnate 1. R. glabra
- aa. Leaves trifoliate.
 - b. Leaflets sessile 2. R. aromatica
 - bb. Leaflets petioled 3. R. radicans

1. R. glabra L. (var. borealis AA.) -- Sumac, White Sumac (Vinaigrier) -- Shrub with long, pinnate leaves. Glabrous. Leaflets numerous, lanceolate, opposite, serrate. Twigs often glaucous. Inflorescence terminal, a large panicle of green flowers or reds drupes. Mid summer. Dry and open woods on the Coteau de Prairie and in southeastern Manitoba. -- swQ-ecS, BC, US, (CA).

2. R. aromatica Aiton var. trilobata (Nutt.) Gray (R. canadensis Marsh. var. trilobata (Nutt.) Gray; R. trilobata Nutt.) -- Squawbush, Skunkbush -- Trifoliate-leaved shrub with terminal clusters of reddish drupes. Leaflets irregularly lobed or toothed, commonly trilobed, the terminal leaflet abruptly long cuneate at base. Fruit minutely glandular-viscous. Early spring. River flats and steep banks of coulées. -- S-Alta, US, (CA).

In the more eastern var. aromatica the terminal leaflet is 4-7 cm long and bears 7-13 teeth while the bracts are glabrous dorsally in the upper half. In our var. trilobata the leaflets are smaller and cut into only 3-5-(7) teeth while the bracts are uniformly densely pubescent dorsally. The difference in the size of the leaflets may be only a climatic reaction, if we are to judge by a Saunders collection of material cultivated at Ottawa (DAO) and originating from Lethbridge.

3. R. radicans L. var. Rydbergii (Small) Rehder (R. Toxicodendron AA.; Toxicodendron desertorum Lunell; T. Rydbergii (Small) Greene) -- Poison-Ivy, Poison-Oak (Herbe à puce, Bois de chien) -- Rather inconspicuous low shrub with 3 large leaflets on a long erect petiole. Leaflets ovate, entire to coar-

sely toothed. Flowers in a small panicle between the leaf bases. Fruit a small pale green drupe, glabrous. Late spring. Common, abundant and almost ubiquitous in forests, shores and sand dunes. -- NS-BC, US.

The slightest contact with any part of this shrub may cause a very itchy and painful dermatite that can easily degenerate into a hospital case. In some parts of its range this shrub is very virulent, but in our region it seems to be almost innocuous, perhaps because of the drier or cooler climate.

Our variety is a low shrub and strictly non-climbing. The typical phase occurs in southwestern Quebec and southern Ontario and southward; it will climb up to the nearest tree by means of adventive rootlets in the manner of Vitis.

ERRATA GRAVIORA

- Page 5, line 11 from bottom. Instead of: nichr
read: niche
- Page 10, last line. Instead of: 0.05
read: 0.5
- Page 15, line 19 from bottom. Instead of: mm
read: m
- Page 22, line 20 from bottom. Instead of: aqualinum
read: aquilinum
- Page 22, line 10 from bottom. Instead of: mm
read: m
- Page 26, line 22. Instead of: cm
read: dm
- Page 30, line 5 from bottom. Instead of: virgianum
read: virginianum
- Page 38, line 8. Instead of: mm
read: m
- Page 70, line 4 from bottom. Insert the single letter
n so the sentence will read in part: a
series of n generation segregates.

ADDITIONS AND CORRECTIONS

The following were accidentally omitted or came to our attention after the corresponding text had been given its final form for printing.

Page 62 -- A report of typical Potentilla flabellifolia from Alberta by Hitchcock 1961 was repeated by Boivin 1966. It could not be substantiated by specimens at NY or WTU and may represent only a lapsus calami.

Page 74 -- The range of Thermopsis rhombifolia should probably be amended to eliminate BC., as the reports (Ulke 1934, Eastham 1947, Taylor 1966 and Boivin 1966) and specimens from that province are likely to represent errors of identification or mislabels or cultivated plants. None has ever been confirmed and most are far out of range and by as much as 400 miles. The Field report carries the unlikely habitat of "open woods" and there was no specimen under that name in 1964 at TRT where Ulke's herbarium is preserved; the original sheet may have been revised since. The Summerland specimen (UBC; DAO, photo) is dated 1935 and carries no habitat data; it is impossible to eliminate the possibility of its being cultivated material. Further if it were native it would be surprising that such a showy plant would have escaped the attention of the many visiting botanists and the numerous resident research botanists at Summerland. The Goat Mt., Erikson (V; DAO, photo), collection carries no habitat data, but the many sheets at UBC from the same area by the same collector are all annotated "garden grown". Another sheet at UBC (photo at DAO) was revised in 1964 from Lupinus nootkatensis to Thermopsis montana Nutt. and appears to be the basis of the inclusion of the latter in the list by Taylor 1966. We have revised it to T. rhombifolia. It is a mere fragment of inflorescence labelled C.V. Copley, Ingenika River, soil gravelly bench, very wet, springy, lat. 56, 46; long. 126, 25, June 18-26, 1914 (UBC; DAO, photo). The habitat is wrong and the specimen is out of range by some 10 degrees of longitude. Thus we are left without convincing vouchers for either species of Thermopsis from British Columbia.

Page 79 -- Add the following which keys out to M. wolgica.
5. MELILOTUS ELEGANS Salzm. -- Legume strongly ridged transversally. Glabrous or nearly so. Flowers yellow, about 4 mm long. Pedicel about 2 mm long. Calyx slightly shorter, 1.5-2.0 mm long, its lobes triangular. Legume \pm 3 mm long, obovoid, glabrous, turning black. Summer. Rarely escaped to waste places; Brandon. -- sMan, (Eur, Afr).

Like M. indica and M. wolgica, a casual escape from experimental plantings.

Page 107 -- Add after Populus balsamifera.

4 X. P. Jackie Sarg. (P. manitobensis Dode) -- Hybrid with P. deltoides. The leaves not so white below, more coarsely serrate, deltoid-cordate and caudate. Local, especially in sand dunes. -- swQ-Alta, (US).

Our western plants could be treated as a nothomorph of the

eastern type, but the morphological distinction to be established has eluded us.

Page 141 -- The range of Mirabilis hirsuta var. hirsuta should be extended to include B.C. as it was collected at Keremeos in 1963. The species is native in our area, but occurs east and west of us only as a railway introduction.

Page 173 -- Arceuthobium americanum has been reported from White Otter Lake in western Ontario by J. Kuijt, Nat. Mus. Bull. 186: 138. 1963 quoting an earlier (1956) report by Horde & Quirke. The corresponding voucher, McPhee & Miller 4240, White Otter Lake, on Pinus banksiana, 1-IX-1955 (Sault Ste. Marie Forestry; DAO, photo), was in 1967 revised by Kuijt to A. pusillum. We concur.

Page 173 -- The range of Arceuthobium pusillum should be extended westward to the region of Hudson Bay Junction in east-central Saskatchewan according to J. Kuijt (see above) in the same paper. The relevant voucher specimen (not seen) is reportedly preserved at UBC.

Page 173 -- The report by Boivin 1966 of Alaska for Arceuthobium Douglasii Eng. was a lapsus calami for Alberta and was based on the earlier report by Hitchcock 1964. However A. Douglasii is restricted in Canada to the valleys of the Kootenay and the Okanagan and, pending checking of the relevant specimens, we are withholding judgement on its presence or absence in Alberta.

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